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Point Judith Corrosion Test Facility

by Paul Kandarian

Low rust, no miles.

Ocean Road, Point Judith, Narragansett
(401) 789-0444

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What's eighty years old, lives on the ocean, is exposed to sun, sea spray, and salt air every day, all year long, and yet still looks fabulous enough to grace the cover of the 2007 South County calendar?

Not a living soul. I don't care how much sunscreen or how many skin-care products you use; spend that much time on the water, you're gonna wrinkle, shrink, and shrivel. But corrode? Not if you're one of the thousands of residents of the Point Judith Corrosion Test Facility run by **Alcoa**. Yes, the aluminum people.

"The site has been there roughly since the late 1920s," says Jim Moran, corrosion engineer for Alcoa and a man in the know about what it takes to corrode metal. "It's our one and only seacoast exposure station in the United States."



The test site is about one acre in size, rectangular in shape, and sits right on the shoreline next to the **Coast Guard Station** at Point Judith, which, okay, was the main star of the aforementioned calendar cover; the test site just happens to be right

next to it. Alcoa has been leaving stuff here—thousands of chips, chunks, hunks, nuts, bolts, fenders, window frames, you name it, all made of aluminum or aluminum alloys, all used to build planes, trains, and automobiles and a host of other things—for decades to see how withering weather can be to the highly resilient aluminum. "Some of the stuff we took out had been there fifty years," says Marsha Egbert, leader of the corrosion testing group for Alcoa, which is based in Pittsburgh.

"There's no substitute for time in testing," Moran says. "A lot of corrosion people, if they have material in test for ten years and it's performing well, they want to see it there for twenty. We're reluctant to take things out of test, unless a product is obsolete or the space needs to be used for a more recent product."

This is not a site on any South County tour. For one thing, it's ugly: a bunch of metal materials, mostly gunmetal gray and totally nondescript. Indeed, the aerial shot on the cover of the 2007 calendar highlights the Coast Guard station, not the corrosion facility next to it. If you look at the photo, you recognize the **lighthouse**, but the Alcoa site, looking sort of like a bunch of giant playing cards on end, may give you a "what the heck is that?" moment.

Even Narragansett residents are puzzled. I call around to the town hall, the fire station, even the Coast Guard, and there's a lot of head scratching as to just what the heck the site is, who owns it, and what it's called.

I finally figure it out and then take a self-guided tour of the site, which is very much confined to standing there looking at it through a locked chain link fence topped by barbed wire that, by the way, shows no signs of corroding. If this were a condo site, it would be spectacular; the testing facility abuts the ocean, with waves crashing on the rocks, sending spray into it.

Inside the long rectangle are thousands of, well, things, and most of them are strapped to dozens and dozens of slanted easels that stand in rows facing sea and sun like silent sentinels welcoming the ocean mist. Farther back toward the parking lot are other hunks of aluminum products, spending their potentially corrosive moments in the sun.

The company has other testing sites—one in the Los Angeles basin, where corrosion from the basin's fabled smog is tested, and another near Pittsburgh, an acid rain haven. But Point Judith is Alcoa's sole seacoast site and it's a beauty, just what the corrosion doctors ordered.

"It's pretty rocky, so you get a nice splash, a mist of salt that comes up over the station," Moran says in tones of near reverence for a location that would reduce to corroded dust a lesser metal than aluminum. "On just sandy beaches you certainly get plenty of salt in the air, but at Point Judith you get that added bonus of waves slashing the rocks that makes the site tend to be on the severe side."



How often material is taken out depends mainly on two things: How long it takes for stress corrosion to show itself, meaning when it cracks, and atmospheric corrosion, meaning when it begins to weather. There are inhumanely boring explanations of exactly how metals corrode, engineer Moran admits, humanely sparing me those details. Suffice it to say when I offer that "Hey, aluminum is aluminum, right?" they understandably get their proprietary backs up. Alcoa, after all, is a mega-company, with 116,000 employees in forty-four countries. That boat you float on Narragansett Bay? The jet you fly over it in? Maybe the bus you take to Foxwoods? Chances are, they're part Alcoa. And chances are, the materials in them were tested here.

Some of the stuff is winning awards. In the Oscar version of such accolades for the science industry, a team of Alcoa researchers and engineers won an Research and Design 100 Award for the development of a new generation of aluminum-lithium alloys for the aerospace industry and yes, they were tested at Point Judith. To give you the import of the award, consider past winners: The ATM in 1973. The fax machine in 1975. The Nicoderm patch in 1992. And high-def TV in 1998.

Aluminum: It's not just for tin foil anymore.

"We're pack rats when it comes to outdoor exposure," Moran says in reference to the long-time residents of the site. "It takes a long, long time to get the kind of exposure we're after."

But for a calendar girl like the Point Judith Corrosion Test Facility, time is definitely on her side.