

## Message from the General Manager

By Henri Letient



Another successful year at Red Dog! There is much to be proud of and to recognize! Despite a few challenges along the way, we met our production goals. For the third year in a row, we lowered production unit costs, thereby improving profitability. With a total of 1.3 million wmt concentrate loaded on 26 ships, 2015 was the third highest season in terms of volume in 25 years of concentrate shipping from Red Dog. Water discharge

went extremely well with 100% compliance with all discharge limits. All of this requires good team work and contribution by all. Well done!

While the safety statistics continue to indicate we have more improvements to make to keep everyone safe, I am proud of the good efforts made by all on several fronts. We've embedded the concepts of High Potential Risk Controls and Work Team Risk Assessment. We've also made great progress on our four focus areas: Confined Space, Logout-Tagout-Tryout, Workplace Inspection and Working from Heights. Nearly 400 safety team ideas were completed.

I am particularly proud of all the outreach and support we do in our surrounding communities. This year alone, we contributed over a million dollars in voluntary support to various initiatives. That's in addition to the \$12.04 million dollars contributed to the Northwest Arctic Borough and School District. As many of you live in our surrounding communities within the NANA region, you know how important it is to have Red Dog as an economic driver in the region.

All of this great work is setting us up well for an exciting 2016. In these tight economic times due to low metal prices, Red Dog is well prepared to weather the storm. We've managed to keep our costs down while making many production improvements. Because we have a great team here at Red Dog, we will get through this period even stronger than before. We have put a lot of effort over the past three years to improve performance and ensure we create a safe working environment. Each one of you was called upon to do your part and the results clearly demonstrate that you answered the call. Thank you! Let's keep that momentum going and have a great year with everyone going home safe and healthy every day!

## Science Fair Judging

By Peter McNeil

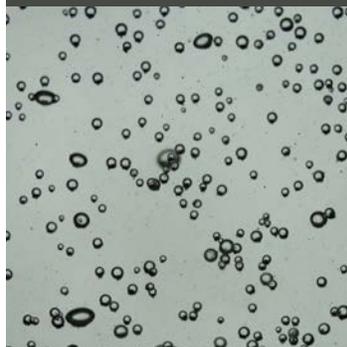


On December 2, I had the opportunity to participate as a judge in the Kotzebue June Nelson Elementary School science fair. Grade 4, 5, and 6 students worked in small groups on a variety of interesting science

experiments. My personal favorite, *TP Muscles!*, tested the strength of several toilet paper brands (I wonder where Red Dog TP would rank?). I was impressed that the students had repeated their experiment 10 times in order to increase the statistical significance of their results. They were also able to demonstrate the practical importance of their findings, noting that, "you don't want to get your hand dirty". I would like to thank the staff and students for welcoming me at the science fair.

## Bubble Technology

By Rodrigo Araya



Bubbles in zinc rougher cells.

The Mill Technical Group has acquired new technology to see bubbles in flotation cells. This technology consists of a set of three sensors that will help in measuring bubble size, how the air is distributed in the cell and the fraction of air held in the cell volume. This diagnostic toolkit will help in monitoring air dispersion in our flotation cells which will allow us to identify and prioritize which cells require maintenance without having to drain them. The information collected will also help in identifying process improvement opportunities.



Issac Ballot, Mill Operator standing over flotation cells in the mill.

## Red Dog Cross-Country Ski Club

By Matthew Line



In 2014, Red Dog Recreation Committee purchased 20 sets of cross-country ski gear for the use of anyone at Red Dog. Each set consists of skis, bindings and poles. The only thing you provide is your own boots. The boots need to work with NNN or NIS binding systems.

As daylight hours increase in the new year, we enter prime cross country skiing season. The ski gear is stored at the end of the hall in the NW wing of the PAC. A map showing common routes and a sign out sheet is available for use.

To be safe, make sure you are wearing appropriate clothing. Dress in layers, and be aware that you might be colder on the way back to the PAC if you are skiing into the wind. Going out with a buddy is encouraged, but if you are going solo, let someone know where you're going, when you expect to return, and when you actually get back.

If you haven't cross-country skied before, or just need a refresher, there are several frequent skiers, including myself, that would be happy to have partners for a ski trip.

## Shovel Party!

By Bob Chesham

"Help!" That was echoed recently by the mill operating group as they were inundated with carryback in the conveyor gallery area from plant upsets subsequent to our annual maintenance shutdown. Their request for cleanup help was responded to by staff, maintenance and operating personnel who showed up for a "shovel party".

This was a great example of teamwork! The bonus was some good old-fashioned sweat and exercise. All those in attendance were briefed on safety concerns, SETA cards (safety, environmental, task assessment), LOTOTO (lockout, tag-out, tryout) and before hitting the field everyone went through a stretching exercise.

Well done! And thank you to all who showed that they care by participating. It is amazing what we can accomplish as a team!



Photo L to R: Wes Sommers, Skylar Brodigan, Jobe Hadley, Bruce Allred, Bob Chesham, Brandon McMillan, Tom Van Norman, Front: Herb Adams

Others not shown: John Stevenson, Doug Graham, Eli Reintsma, Jose Rios, Brent Greer, Aaron Towarak, Michael Boyce, Andrew Merritt, Mike Gonzales, Emery Johnson, Mark Whitehead, John Sommers, Kevin James, Billy Nelson, Sam Ballott, Evan Wlach

## Our Internet Comes From Space

By Michael Rogers

"Hey Michael, the Internet is atrocious! When are you going to get it fixed?"

I've heard this more times than I can count this past summer and in all sorts of variations, interspersed with the colorful language typically associated with those in the mining industry. It's true, the Internet connection in our PAC (Personnel Accommodations Center) was far worse than it was in the spring. We were overloaded with more people than ever on site, our Internet Provider was shorting us on bandwidth and to make matters worse, people were expected to pay to use this system! The situation stunk worse than rancid meat in the summer. It was time for a change.

We all know that Red Dog's remote northern Alaska location can present challenges, particularly with the Internet. With no roads leading here and only a runway for planes, there are no power lines or phone lines which means no Internet or television broadcasts either. That leaves us with only one option: satellite. But only a few satellite carriers have ventured this far north. After five months of calling, negotiating, re-negotiating, performing system trials, negotiating again, more system trials, etc., we finally have faster Internet!

The Information Systems team was pleased to do the October roll-out and even more pleased with the results. Facebook works, email works, and phone calls are crisp and clear! No longer do I hear "When are you going to get it fixed?"

# HE Shop SOS

By Kevin Lackey

The Heavy Equipment (HE) shop uses the Caterpillar SOS program (Service Oil Sampling) to monitor equipment and hopefully predict potential failures before they happen. The usual sequence was that the HE shop technicians collected samples at the beginning of a preventative maintenance (PM) or service and submitted them to a vendor in Seattle for analysis. The normal turnaround is just over two weeks time, and can be longer if weather delays hold-up the shipments.

The problem with the plan was that in many cases, the oil analysis DID predict a failure. Unfortunately, the equipment had left the shop and was being used in production for a week or two before the sample results were received. Often, the “predicted” failure was confirmed by the fact that the unit had failed in service.

Reliability Engineering addressed the problem. The solution was to purchase an automated oil analyzer and ask the Assay Lab to be responsible for running the samples provided by the HE shop. Samples were collected and submitted to the Lab with the goal of receiving results in 24 to 48 hours, hopefully before the unit had left the shop.

Several very positive results were achieved in the first two months of the new program. Unit 92-08 was found to have water and glycol in the oil, in addition to other minerals that indicated a significant coolant leak. The engine was new (<2000 hours) and under warranty. The engine supplier agreed to rebuild the unit at their expense. Had the engine been allowed back in service and failed, the cost of repair would have been \$120,000 to \$200,000.

Unit 97-13 was found to have high metal content in the right final drive. Again, the oil was changed and the unit is being monitored closely. Had the problem not been located, repair costs would have been approximately \$40,000.

Several units in the 82 fleet have had water in the front hubs. The oil was changed before failure, saving \$2,000 per unit in repair costs.

The automated instrument was relatively expensive, but it has saved much more than its initial cost in just the first two months of operation.

# Red Dog Community Investment

Teck's Red Dog Community Investment program for 2015 contributed \$1 million dollars to the Northwest Arctic Borough and its eleven surrounding villages. We help communities connect by supporting activities such as Walk-for-Life, Elder's Appreciation Feasts, Qatnut Trade Fair, Kobuk 440, Team Baker, 4th of July and winter holiday events. We also support the region's critical communication link, KOTZ radio broadcasting as well as Search and Rescue organizations in their efforts. Red Dog supports environmental programs including a biochar and village seed program and annual spring cleanup efforts in the villages. Teck proudly supports education for youth, recreation and cultural programs, including the Red Dog NBA Basketball student incentive program.



Red Dog Community investment receives and reviews donation request applications quarterly. Successful awards will be made in the last month of each quarter.

For all donation and sponsorship requests, please apply online at:

<https://communityinvestment.teck.com>

Quarter	Deadline
Q1	February 29
Q2	May 31
Q3	August 31
Q4	November 30

# Crusher Fall Protection Ring

By Brent Greer

Our crusher crew is empowered by our supervisor, Saul Arevalo, to come up with ways to improve the safety and quality of work on our jobs. One of the many ideas we came up with was to improve the safety of our concave re-lines. We have tried a lot of things, but this particular idea is a significant help.

When we pull the spider and the main shaft, it leaves a large opening around and into the bowl. Our team designed and built a ring with handrails (inside diameter 11 ft. 9 in.) that covers the 2-foot hole around the bowl to prevent someone from falling into the bowl itself. The bowl area (8-foot deep) must be accessed with ladders, so we built two safety swing gates, as well as Miller brand fall protection davits to tie-off to once the bowl area is entered.

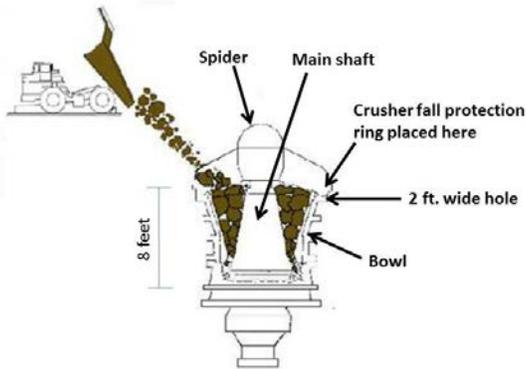
This safety idea came from the entire crusher crew and was fabricated by Curt Wladyka and Jeremy Jenson. There are no toe boards needed in the ring. There is a natural toe board already built into the crusher bowl. Mid-rails are being installed within the handrail to further increase safety.



Crusher Re-Line in Progress. © 2016 Pentticon Foundry.



Safety Handrail



## Geologist-in-Training Visits Anchorage Classroom



Brian Hall, a mine geologist-in-training at Red Dog, paid a visit to a 4th grade classroom at the Alaska Native Cultural Charter School in Anchorage. The class had wonderful things to say about his visit:

*"I really appreciated the visit from Brian the Geologist. We were studying Rocks and Minerals in our Science Kits and Brian reinforced the vocabulary words that we were learning. The students really loved the samples that he passed out."*

*- Georgianna Starr, 4th Grade Teacher*

*"We learned different names of minerals. They were different sizes and shapes."*

*- MarZary, 4th Grade Student*

*"I liked that he gave us rocks with different minerals from the mine. There was luster in them. They could break easily."*

*- Luci, 4th Grade Student*

*"I liked when he came and taught us new science words."*

*- Julissia, 4th Grade Student*

# Dave Ramsey Classes Are Back!

## So, who is Dave Ramsey? And why do I care about his classes?

Dave Ramsey is a well-known author and radio personality who specializes in personal finance. Red Dog is offering his newest class, SmartDollar. SmartDollar is a different approach to managing your budget and planning how to eliminate debt and save for retirement. One change with this course is that you can attend online and the classes consist of 20-30 minute videos. You and your family can follow the course together – and the entire cost of the course is covered by Red Dog.

We've offered Dave Ramsey financial courses in the past, and they have been very successful. Approximately two hundred folks from Red Dog have completed Dave's signature course, Financial Peace University (FPU).

The results have been amazing. One of our recent employees came to Red Dog with family debt (student loans and personal loans) of \$132,000. Applying the principles learned in FPU, they are now debt free! All of the money that would have gone to paying these bills is now available for saving, investing, or providing a better quality of life.

Many of us know Nelson Walker (Dinky) who retired about a year ago. He emailed me shortly after retiring, writing: "Hopefully this gets to you, I would like to take this opportunity to thank you for enabling me attend the Dave Ramsey classes you put on. As of today, February 5, 2015, I am debt free. Today, I've paid off more than \$74,000 in debt." Learning a bit about how to manage income has made a major difference to our employees.

For the past several years, the full cost of the course (\$199 per individual) has been paid by the Recreation. The SmartDollar course is still free, but you do need to register.

If you want to connect from the Service Complex, go to: [http://rover.teckcominco.loc/Dave\\_Ramsey/Smart\\_Dollar.htm](http://rover.teckcominco.loc/Dave_Ramsey/Smart_Dollar.htm)  
At the PAC (Personnel Accommodations Center), go to <http://rdm-pac.gci.net>.

If you'd like to have access while you're off site, or if you'd like to make the program available to your family, you can register for FREE offsite access as well. The web address for the signup is also on our intranet website. (The Ramsey Company will never try to sell you anything or require a credit card for the course.)

## KTUU Story

By Wayne Hall



Mallory (left), Laura (right), new friend (middle)

It is not often that we have the media and reporters at the mine site. However, when we (Red Dog and NANA) were contacted by KTUU Channel 2 News to do a story on the history of Red Dog, our mining methods, and the worldwide use of zinc, we decided this would be a great opportunity to tell our story. KTUU reporter Mallory Pebbles, and video journalist Albert Lutean, came to site in late October for a 2-day visit. They were accompanied by our colleague, Laura Orenga, NANA Regional Corporation's Corporate Communications Specialist.

When they arrived at site, one of the first things they wanted to see, like most visitors, is a pit blast. But the timing wasn't right and no blasting was scheduled during their visit. We spent the most of the two days filming the operation and interviewing employees. However, in typical Red Dog fashion, and with the help of Mother Nature, they managed to have their trip extended by four more days due to weather! This created a unique opportunity for the visitors to develop a deeper understanding of Red Dog and the people who work here, and see that we are not just coworkers, but friends and family. The reporter and camera crew got to experience firsthand how Red Dog's camp and working environment creates strong relationships that you don't always see at other facilities. They commented about the friendliness of the people who work here. Their extended stay also allowed them to film a pit blast, which was icing on the cake.

Many of you may have seen the Red Dog segment on KTUU news that aired on November 5. For those who have not seen it, the video can be viewed on the KTUU website: <http://www.ktuu.com/news/news/mining-alaska-part-iv-red-dog-mine/36292758>

I was proud to show the reporters our little mine in the tundra and all of the great people who work here. You made my job easy and everyone was very accommodating and helpful. I would like to personally thank all of you for your help and efforts.

# Red Dog Mine Holiday Dinners

Holiday meals are a highlight for employees that have to work during a time that is important to be at home with their families. Red Dog Operations and NMS goes above and beyond to make sure that the workers enjoy gourmet holiday meals.

Two hundred-ninety people attended Red Dog Mine's Christmas Dinner, and the New Year's Dinner hosted 261 participants. Everyone enjoyed an extensive menu including hor'doeuvres, salads, and two entrées — Bering Sea Alaskan King Crab Legs and charbroiled filet mignon. The meals ended with five dessert choices.

## 2015-2016 Red Dog Mine Christmas & New Year's Dinner Menu



*Chef Craig Poindexter steaming King Crab Legs*

### HOR'DOEUVRES

- Deviled Eggs
- Deep Fried Chicken Wings of Fire
- Reindeer Sausage and Jerky
- Domestic & Imported Cheeses
- Assorted Crudities'/ House Dressing
- Smoked Salmon
- Peel and Eat Shrimp
- Fruit Tray

### SALADS

- Chicken Caesar Salad
- Spinach Salad with Mango Chutney Dressing
- Frozen Berries & Cream
- Waldorf Salad

### ENTRÉES

- Bering Sea Alaskan King Crab Legs
- Charbroiled Filet Mignon w/Chef's Special Pepper Sauce

### ACCOMPANIMENTS

- Steamed Garden Vegetables
- Saffron Rice & Red Pepper Pilaf
- Asparagus w/ Hollandaise
- Duchess Potatoes
- Steak Fries & Onion Rings
- Baker's Selection of Holiday Breads and Rolls

### YULE TIME DESSERT TABLE

- Crème Brule'
- Tiramisu
- Dark Chocolate Truffles
- Assorted Petit-fours
- Holiday Cookies & Confections

### BEVERAGES

- Eggnog
- Non-alcoholic wine

# High Energy Blasting Improvements

By Jacob Kuchta

The most effective way to achieve higher mill throughput is to use the explosive energy in blasting more effectively to improve rock fragmentation. To take full advantage of explosive energy, a well-executed blasting program must be in place.

In 2015, Red Dog made several improvements to the blasting operation in an effort to enhance the safety and quality of blast results. At the start of 2015, Red Dog approached Orica USA for help to improve our blasting program. Throughout the year, significant efforts were invested to incorporate industry best practices to the standard operating procedures of Red Dog Blasting Operations. A Handbook for Explosives and Blasting Operations was written for use as a training tool. This handbook is tailored specifically for Red Dog blasting conditions and equipment. The handbook is also a source for understanding explosive products and how explosives are used as a tool in the mining process. The handbook has created a foundation for Red Dog Blasting Operations that is based upon safety and quality of work. With this base, Red Dog can continue efforts to take full advantage of the high energy blasting (HEB) initiative.

High energy blasting is the concept of increasing the explosive energy used in blasts to improve rock fragmentation as compared to typical blast designs. Effectively using higher explosive energy in blasting allows the mill to process ore faster with less energy consumption. The milling process gains direct benefits from HEB.

Red Dog Drill & Blast Engineering (Jake Kuchta, Matt Line, and Sharon McCleary) is currently researching and testing methods to improve upon the high energy blasting concept. Some methods include: increasing the diameter of blast holes to load more explosive energy into the ground and drilling blast holes more closely together and using explosives with higher energy output.

The effectiveness of the HEB program can't be evaluated unless we are able to perform the work safely and consistently. The procedures established by the Explosives and Blasting Operations Handbook allow Red Dog to make improvements to blasting with safety as the core value. The reliability and safety of the drilling and blasting process will be one of the many cornerstones for a successful 2016 for mine operations.



## Red Dog Drill and Blast Crew:

- Matt Duhaime
- Dustin Thomas
- Darrell Sawyer
- Todd Hjelm
- Ray Martin
- Mike Carroll
- Harry Kokeok
- Terry Daley
- Charlie Gray
- Eric Gooden
- Turk Martin
- Chase Cushingam
- John Ballot

Suvisi (Sü-vĩ-see) in the Iñupiaq language means:

“What are the many people doing?”

## Grant available for a female business owner to attend 3-day business education program.

E-Series is a 3-day transformative program for women entrepreneurs that provides classroom style sessions on topics such as sales, marketing, branding and for continued support after the program, all participants will be paired with a mentor for 14 months of continuous 1:1 support to ensure they have the insight and feedback they need.

One (1) grant is available for a woman from Red Dog Mine region to cover round trip travel to Vancouver, tuition and mentorship.

### A proven track record.

Over 90% of E-Series graduates since 2003 are still in business, and have enjoyed an average annualized revenue growth of 40%.



**GRANT:** Tuition, travel and accommodations for the three full days are provided by Teck Alaska valued up to \$5000 CDN.



**ELIGIBILITY:** Any woman entrepreneur currently running her business of any stage and industry.



**APPLY:** Applications open until January 30, 2016. **\*\*Applicant must have a valid US Passport for April 2016 travel.**

**CONNECT:** Please contact **Verna Westlake** (Community Relations Coordinator) at **907-754-5189** or email her at **verna.westlake@teck.com** for more details about how to apply for the Teck grant.



Red Dog Newsletter

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## For Current Job Vacancies (or opportunities)

Please go to [www.teck.com](http://www.teck.com) and/or [www.nana.com](http://www.nana.com) and apply on-line. (Paper applications or letters of interest are no longer accepted.)

# Quyaana

*Thank you, to all who contributed to our newsletter.*

To submit topic ideas or an article about your work, a coworker spotlight, a special project or life at Red Dog, contact [verna.westlake@teck.com](mailto:verna.westlake@teck.com) or [communityrelationsRDOG@teck.com](mailto:communityrelationsRDOG@teck.com)