When safety is the bottom line

PeruRail's application and strict enforcement of "North American" safe operating practices has drastically reduced accidents.

Waiting at Tiabaya station, just a few kilometers South of Arequipa, on a rather chilly and pitch black night, we can hear the periodic Nathan air horn blasts echoing along the Chili river canyon walls for a full half hour before the locomotive's lights round the bend and come into full view. The train, a northbound freight drag moving tonnage upgrade from the ocean port of Matarani to Arequipa, blinds us and lights-up the surrounding area. The loco looks like the veritable Christmas tree, after having being equipped with new powerful headlight reflectors and ditch-lights.

Canadian railroader, Brooke Ruskin, PeruRail's General Manager, bends over, strikes a flare and brings the train to a halt. Ruskin inspects the train crew's track warrants, documents and permits and then conducts a short safety briefing with the crew. The train is moving again within five minutes.

"Inspection is paying off tenfold. Safe operation is the bottom line".

"Inspection is paying off tenfold", explained Ruskin. "One of the first things I did when I arrived was to create an Operations Safety Team ". The five man team is headed by a manager and four assistant managers, based at Arequipa, Juliaca and Cusco which take daily instruction & guidance from Alberto Valdez, the railway's Director of Transportation Services. "Since then, the combined effect of structured mechanical inspections,

Myth blown sky high. Locomotive No. 551, a 2000 HP 1961 ALCO product, proves perfectly capable of handling passenger trains over the high line. Fresh out of PeruRail's Arequipa shops, No. 551 is seen on its first long haul passenger train outing as it crosses the impressive Colca river bridge at Sumbay, heading one of the last regular passenger trains over this route.

ditch lights, new Nathan air horns and revised train handling procedures have almost reduced human factor incidents to zero. Today, safe operation is the bottom line", highlighted Ruskin, who, along with members of his management team regularly swoop down unannounced at any point on the line and personally inspect train crew and operations personnel's compliance with rules and regulations. "Today, our focus is transportation. Later on, we will move towards track and mechanical. Our goal, on the standard gauge, is to have trains inspected every 100 kilometers".

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All this has paid off handsomely and personal injuries, accidents with trespassers and collisions with other vehicles have been almost eliminated. The price to be paid is small: regular complaints stating that powerful and sudden horn blasts startle the local population. On the other hand, this negative effect has been more than offset by making the population fully aware that the railway is very much alive.

Main line derailments have been curbed and it is common to see inspectors walking along the trains with flange gauge in hand, removing any car or locomotive with suspect flange or wheel wear from the consist.

"We also brought down a Canadian locomotive crew instructor who spent a whole month on board the locomotives, riding with all the different train crews, revising and correcting existing train handling procedures", added Ruskin, who also told Latin Tracks that the railway had increased the quantity of train crews to provide sufficient rest periods. The railway now regularly subjects train crews to random testing to discourage any alcohol and/or drug consumption which may endanger operations.

Mechanical, Engineering and Train crews are required to observe strict protection measures, which include "chocking" unattended cars in yards, to prevent runaways, and providing rear-end protection when making backing up movements.

All these safe practice measures, added to substantial investment in track, have really paid off. During February 2002,

PeruRail registered only three main line derailments of minor consequences.

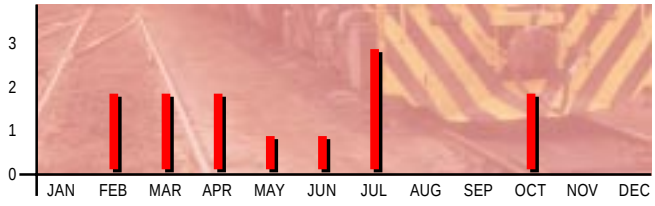
To continue maximizing safety measures, PeruRail plans to install "dead man" locomotive safety systems on all it's motive power and equip trains with compatible end of train devices by 2003.

Red flags and powerful lights provide end of train protection for prestige trains plying the Puno - Cusco route. Here, Perurail's two first class trainsets cross at La Raya. At 4319 meters above sea level, it is the highest regular passenger train stop in the world.

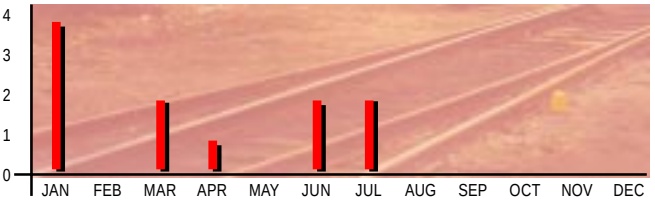
Another safety measure put into practice by management requires running protection vehicles in front of all passenger and freight trains on the standard gauge. On the narrow gauge, protection vehicles always run in front of the first train of the day. In the photo, "Autovía" No. gets ready to leave Aguas Calientes (new) station ahead of the first afternoon train back to Cusco's San Pedro station.

Constant inspection is the key and private cars "Ampato" and "Misti" are regularly taken out by management on inspection tours. In the photo, high nose 1200 HP ALCO/MLW No. 482 and inspection car "Ampato" roll through Quiswarani station (Km 135) on the Matarani - Arequipa section.

Accidents with trespassers - 2001



Collisions with other vehicles - 2001



Last of the orange liveried GM's. After being stripped down to the frame and reassembled, Nos.753 and 756 will emerge in PeruRail's corporate blue and yellow livery. "It is amazing how these people can pull apart and reassemble the locos without having to resort to any kind of manuals or schematics. They have it all in their heads", states Ruskin.

Motive Power

On the motive power front, Ruskin has had the 500 series ALCO/MLW's MU receptacles re-wired, so that they can now be used in consist with the GM's (700 series) and other locomotives in the 600, 400 or 300 series, when on the standard gauge. Use of the 700 series locos working in multiple with the 600 or 500 series was something that had never been attempted before. "Train crews said it was impossible, till I had them couple-up both locos and told them to proceed just as if they were driving two GM's. Today, the GM's, MLW's and ALCO's are running in multiple all over the network, providing much more efficient utilization of available horsepower". Another myth blown sky high was the one that stated that the 2000 HP, 500 series ALCO's, were not powerful enough to run passenger trains. Again, Ruskin has proved them wrong and now the two recently overhauled 500 series locos, Nos. 551 and 552, are permanently assigned to the varnish plying the route between Puno and Cusco.

Another innovation has been the adoption of the FPC fuel catalyst, produced by FPC Technology of Boise, Idaho. "Since its adoption, back in August 2001, the use of this fuel additive has generated a significant reduction in smoke emission, added savings in fuel consumption and reasserted PeruRail's commitment to minimizing environmental impact", adds Ruskin. During the low traffic rai ny season, the Andean Winter, which extends from November till March, PeruRail embarked on a locomotive overhaul program aimed primarily at increasing loco reliability which obliged the transportation department to move the same tonnage with less available horsepower, and in the process optimize horsepower utilization and break away with many taboos left over from the days of State railway administration.

Class 50 for Peru?

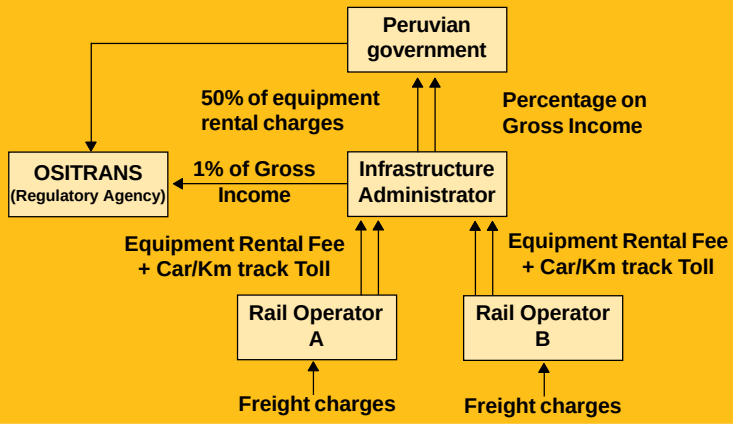
Unconfirmed reports state that Ferrocarril Transandino's controller, the Sea Containers - Orient Express Group, might be considering shipping an ex-British Rail Class 50 (No. 50008) locomotive to Peru. The 2700 BHP loco, built by the English Electric Co. Ltd. in 1967/68 and named "Thunderer". The loco was acquired and preserved by the VSOE group; and is currently held in storage in the UK.

Investment and track fees

"Evidently, there has to be investment. You just have to look at the track and you know that there has to be massive investment. From previous privatization projects we had learned that investment commitments were very hard to determine. To make matters worse, they were usually drawn-up by State bureaucrats, who many times had a totally different idea of what railway operation was all about", Mr. Patricio Barclay, President of the "Comité Especial de Privatización de ENAFER" (CEPRI-ENAFER "Special Committee for the Privatization of ENAFER") told Latin Tracks back in '99.

"So how did we make them invest without a commitment? If the State today looses USD 30 million a year and the day the railways are concessioned the State looses zero, we can afford to contribute towards rehabilitation by not charging a track access fee, as long as the concessionaires can prove that the money has been invested in track maintenance and rehabilitation", continued Barclay. "We decided to establish the quality of the track we wished to have after the first five years and decided on a Class 2 USA Railway standard. How much they will have to invest and where? Don't ask me. Let them walk the track, analyze it and do all they have to do.

During those first five years they can apply 100 per cent of the track access fee payment to track upgrading. We did not discriminate between maintenance and rehabilitation, it would have been too complicated. Between concession years 6 and 10 they can apply 50 per cent. As from year 11 till the end of the concession period, they have to pay 100 per cent of the track access fees to the State", concluded CEPRI's President.



Infrastructure

Besides safety, track is one of the major ongoing issues. "Today, most of our track investment is aimed at upgrading the complete network to USA Federal Railroad Administration Class 2, or better, track standards within the next 2 years" states Ruskin. To prove his point, PeruRail's General Manager highlights that just during the months of November and December 2001, the railway ran 64 work trains, replaced 35 thousand ties and laid new rail on the stretch that runs downgrade from Lagunillas to Saracocha, on the Arequipa - Juliaca line.

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"Capital Investment for 2002 is USD 5.6 million. Our main thrust will be centered on the Cusco - Machu Picchu line, where we will be investing close to 60 per cent of this amount. We plan to concentrate on tie replacement, resurfacing, bridge re-decking and bul-

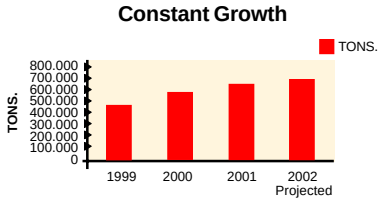
Business end of PeruRail's Fairmont Mark IV tamper as it works on the relatively flat and straight section between Juliaca and Santa Rosa. Once this section of track has been raised and resurfaced passenger trains will be able to run at 75/80 km/hour.

Old fashioned, but 100 per cent effective: intensive use of wooden chocks under all unattended cars have eliminated runaways..

let proofing curves. By the end of the year, we will be able to cut down scheduled travel time by 30 minutes", said Ruskin.
In the meantime, PeruRail's track consultant and FRA certified inspector, Timothy (Tim) Dowling, and Engineering Director, Eduardo Chappuis, are working round the clock developing a complete "footprint" of the network on which to base all future investment in rail infrastructure.
One of the main issues under analysis is the adoption of concrete ties with Pandrol clips, which will help cut acquisition cost by half when compared to the standard treated wood variety currently in use. "The wooden tie requires using tie plates, the cost of which tips the scales in favor of the locally manufactured concrete replacement", explained Chappuis. The concrete ties are similar to those being currently used by Peru's Ferrocarril Central Andino (FCA) and are manufactured by "Union de Concreteras" (Unicon). Unicon has offered to set-up a tie manufacturing plant at Yura, next to the Yura cement plant, a move that would also generate significant reductions in transportation costs.
As an immediate priority and while the railway defines detailed investment plans, track crews are once again raising and resurfacing the nearly straight, 140 kilometer long, Juliaca - Santa Rosa section and will also raise and resurface the complete 45 kilometer long Juliaca - Puno section. By doing this, Chappuis and Dowling aim to increase track speed on the long and lightly graded tangent sections from today's maximum 40 km/hour to 75/80 km/hour. "On curves, we have programmed the two high production Fairmont Mark IV tampers to include spiral transitions, this should vastly improve ride quality and safety; and help cut down scheduled passenger train travel time, between Puno and Cusco, by around 1.5 or 2 hours", says Dowling.
Besides acquiring USD 1.5 million worth of track equipment in 2000 and 3 Jarvis machines in December 2001, PeruRail's next move will be purchasing more small track equipment and hand tools; to assemble rapid deployment, high production, high speed track gangs. The railway is presently building a track geometry inspection car from coach No. 1715 which is expected to be completed by the first week in April and will regularly inspect the property. The outside design is very similar to cars now in service on North American class 1 railways. Once this car is ready, either Misti or Ampato could be repositioned on the narrow gauge for use as private charter excursion cars.

Traffic

Fallout from the September 11WTC blast has slowed down traffic growth, affecting both passenger and freight operations. The drop in tourist flow and completion of a new paved highway have seriously hurt the "Ciudad Blanca" (White City) passenger train's occupancy figures, linking Arequipa with Puno, and forced PeruRail to suspend this service as from February 21. In spite of the suspension, PeruRail will continue operating this route on a charter basis. Although no final decision has yet been taken, as a result of the suspension the meter gauge luxury train purchased in the Far East may be redeployed to operate on the Cusco - Machu Picchu run, together with eight repositioned Inka cars.
Other passenger train services have not been affected by this measure, occupancy ratios have remained high and trains will continue to be run as scheduled.
On the freight side of the business, world recession and the ensuing drop in price of commodities have taken their toll. So much so, that the BHP Billington group has temporarily closed down their Tintaya copper mining operation till prices bounce back. The shut down affected PeruRail's freight traffic growth projections for 2001.
Notwithstanding the recession, during 2001 PeruRail carried 640 thousand tons of freight, 67 thousand tons more than in 2000, and plans to close 2002 hauling around 680 thousand tons. Ruskin is confident that the railway company will get the copper concentrate traffic when the Tintaya mine reopens within the next few months.



Operations

In order to reduce costs and provide a much more rational operating structure, Perurail has closed down Tres Cruces station, the junction just outside Arequipa, and concentrated all switching and train dispatching operations within the confines of the Arequipa yard compound. Future rationalization measures also include shutting down the Palomar diesel locomotive running sheds and transferring this facility's operations to the main workshops, again within the Arequipa yard compound.
PeruRail's recently installed radio communications system, on the standard gauge, and introduction of a track warrant based train dispatching system, has allowed the company to close down Crucero Alto, Ayaviri, Santa Rosa, La Raya, Sicuani and Tirapata stations, which now operate as un-staffed crossing and passing points.
On the narrow gauge and once the three remaining radio masts have been installed, within the Machu Picchu sanctuary; the current train order system will be replaced by track warrants and the San Pedro dispatchers office closed down. When this takes place, tentatively in June 2002, all traffic will then be controlled from Arequipa.

Slug Program

When the Ferrocarril Transandino - PeruRail consortium took over the concession back in 1999, they inherited quite a number of unserviceable diesel locomotives. These locos are currently stored within the Arequipa shop compound and the Palomar running sheds. The junk fleet, comprising locos of the 300 (No. 360), 500 (Nos. 550 and 553) & 600's series (Nos. 651, 652, 655, 657 and 657), was stripped clean of most of their major components, which were used to keep their sisters in service during the days of State administration
Today, PeruRail is analyzing converting some of these carcasses into road slugs. "We are working on some schematics. I would anticipate doing three or four of them (the 600's) over the next year. They will probably be mated with the GM's", said Ruskin.

Scavanged and cannibalized locomotives, Nos. 360, 655 and 550; are currently stored within Arequipa's Palomar compound. The locos will provide sound platforms for a road slug program.

Key Facts

Gauge 1435 mm - 852 km
Gauge 914 mm - 135 km (includes Urubamba Spur to be re-opened May 1st).
Passenger traffic: South – 78,517
Southeast – 792,284
Freight: 639,790 tons
Diesel locomotives 26
DMU's: 10 (Includes 2 from Bolivia awaiting refurbishment)
Passenger cars 68
Freight cars 849
Employees 350