

ORS TREATMENT AND OIL ABATEMENT PROJECT FOR NAFTA TERMINAL

VENTSPILS, REPUBLIC of LATVIA



**NOVEMBER 14 TO 17TH
2007**

**PROVIDED BY
CM SERVISS
Ogre, Latvia**

IN ASSOCIATION WITH



**KÖSTER BAUCHEMIE AG
AURICH, GERMANY**

**KOESTER AMERICAN CORP.
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The CM Serviss Crew



(Left to right)

**Vladimir Kuchin, Bruno Heinbergs, Aleksandrs Antonovs, Joachim Bohlmann,
Vitalijs Visockij, Eduard Kuhta**

**THE FOLLOWING PAGES ARE A PICTURE GALLERY
FOR THE ORS CLEANING & ABATEMENT
PROJECT AT THE
NAFTA TERMINAL
IN VENTSPILS, LATVIA:**



The general location of the Nafta Terminal in Ventspils, Republic of Latvia. The red line represents the major supply routes to Nafta.



This is a view of the Nafta Terminal from the water-side. The white circle is the two tanks that are behind the ORS project site.



This view is looking from the land-side at the same two tanks as in the previous photo; the building in front is the pump station project site.



The project building in front of the tanks is the pumping facility for these tanks and where the first ORS treatment is to take place.



Because approx. 20% of all Russian oil production goes through this terminal and the high price of oil in Europe, security is a priority.



Joachim Bohlmann of Koester American is posing in front of one of the guard towers; note the concertina wire atop the wall.



This shot is inside the pump station showing the raised catwalk (to the left with the plants) and the pumping machinery below to the right.



Looking from the catwalk to the lower area we see some of the water incursion on the lower wall. These pump stations are below grade and have both water and oil leakage problems.



Now we are down in the lower pump area. Note the tile to the left and the trough on the right. Oil has leaked into this entire area.



The principal participants in this project are: (from L to R) Joachim Bohlmann of Koester American; Igor Sinicin of Nafta Terminal and Aleksandrs Kapusts of CM Serviss.



The equipment used for the ORS treatment located outside the pump station. The water heater and pressure washer are on the left, the vacuum on the right.



Pre-ORS treatment procedures, wrapping all sensitive equipment and machinery with plastic coverings. Note machines on left and right wrapped to prevent any water damage.



Prior to beginning the ORS treatment, all the tile has to be removed to expose the oil saturated concrete substrate.



Some of the oily muck and debris under the tile and around the machines prior to cleaning.



Water (and oil) leaking through the sub-grade wall. These had to be repaired in conjunction with the floor repair and clean-up operations.



Another shot of oily water under and near a pump and piping.



This water and oil incursion in these pumping stations has been a long standing problem and one that an environmentally aware company such as Nafta wants solved!



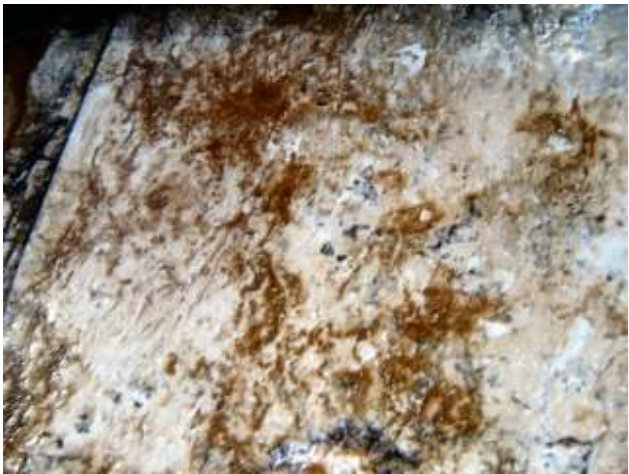
Gints Shevcovs starts the ORS treatment by laying down a heavy foam carpet of ORS-D special detergent. This is applied with cold water high pressure spray.



Gints continues to spray the ORS-D foam, note the plastic wrapped machinery. Both the walls and floor were treated.



As per ORS application procedures, the foam is to soak for approximately one hour. Note the oil readily coming up out of the concrete.



Oil being drawn out of the concrete by the special detergent. Needless to say there is a lot of oil here!



Again, more oil emerging from the substrate and the wall area.



A general shot of the foamed area at the foot of the catwalk stairway. As the hour time limit nears, the foam will start to go from a white to clear. Again note covered machinery.



Due to the restricted space in these areas, the crew was unable to use a floor spinner, so Gints is using a high pressure water wand to clean and remove oil. Note face protection.



Gints continues to clean, note the clean substrate showing through!



High pressure washing continues. Face protection is a must with debris and oily dirt being thrown back at Gints.



During and just prior to the cleaning operations, some of the leaking wall areas must be repaired. This is a pipe wall junction that has been leaking for quite some time.



This is the same area after repairs are made with Koster (Germany- AG) waterproofing products



After the rinsing operations the excess waste water must be removed and contained. There is still more oil to remove, so...



A second foaming is applied and let sit for approx. a half hour. Note the oil streaking in the left center of the white foam area.



Gints prepares to use the high pressure washer again to deep clean the substrate.



Aleksandrs supervises from the catwalk and manages the high pressure hose for Gints below.



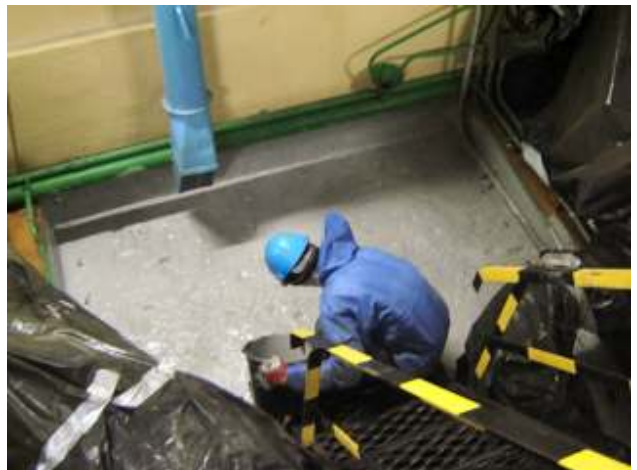
The substrate is now clean and when the excess water is removed, ready for coating with the ORS-C epoxy coating.



After cleaning and prior to coating, some large cracks have to be addressed. These are repaired using Koster crack filling materials. Note the injector pins and the pressure hose.



Cracks are then filled with the Koster KB-Pur injection system resin products. Koster Germany has many such waterproofing and injection products for a full range of repair work such as this.



After mixing the epoxy for three minutes on the catwalk, Eduards Kuhta applies the coating to the area. The ORS-C is gray in Europe, green in the USA.



After the first coat is cured there are pin holes in the coating and oil is being squeezed up and on the coating.



Various oil incursions around the floor area. These are due to the pressure under slab from water and pin holes in the coating.



After much consideration it was decided to apply another coat of the ORS Epoxy. The area was cleaned with ORS-D and recoated and sand broadcast.



Here Eduards is applying the second coat of the ORS-C over the previously sanded ORS coating. This second coat was necessary to completely cover the area with no pinholes whatsoever.



Aleksandrs observes Eduards applying this second coating. It must be remembered that there is water-head pressure and oil trying to get through this slab constantly.



Joachim Bohlmann gives the OK sign to a job done!



As this project continues, a bonding emulsion is applied to the cured ORS epoxy for added adhesion of the underlayment that will be applied next.



A shot showing the application of the bonding emulsion (a Koster product) to the coated substrate.



Gints starts application of the Koster (Germany) self leveling floor 15 underlayment products.



Gints trowels the underlayment into the corner. Note spinney roller leaning against the wall.



Gints is using the spinney roller (also a Koster product) to remove all trapped air and bubbles in the underlayment.



Another shot of the underlayment being applied under a pipe joint by the stairway.



The underlayment being spread under the piping, the stairs to the catwalk are to the right.



After the underlayment has cured the final top coat of epoxy is applied to the surface.



A before shot, compare to the finished floor on right.



A shot of the final floor, compare to the photo of the oily floor on the left.



Finished ORS floor...



Floor before ORS.

Aleksandrs...



FINIŠ!!! (Latvian: Finished!!)
YPPAA!! (Russian: Finished!!)
FINITO GRANDIOZO!!!—DONE!!