
MAJOR INCIDENT & CATASTROPHE RESPONSE BULLETIN

Event: **EARTHQUAKE in CHILE**

Date: **08 March 2010**

Status: **Update advice (Bulletin No 4) + Earthquake Map**

The CSL Major Incident Response Team, which co-ordinates the professional response to large and multiple marine loss incidents is receiving new on-the-ground intelligence following the earthquake which occurred in Chile on Saturday 27th February, 2010.

Latest advice from the CSL office in Santiago and local field operations as at the 7th March 2010 is as follows:

Ports & Airports- update reports:

- **San Antonio (Port):** STI (San Antonio Terminal Internacional) pier has sustained serious cracking and distortion as a result of the earthquake tremor. The pier surface area has been left with a 25 cm vertical step in the surface level. The gantry crane installations at the terminal have been derailed and have sustained various physical damages including the distortion of vertical legs and cross sections. As previously reported, one of the three cranes sustained contact damage from a vessel that broke her moorings during the earthquake. The boom of this crane is visible out of alignment. Specialist crane engineers are already on site evaluating the damages and repair options.
- **Talcahuano (Port):** The port is severely damaged and remains closed. Dozens of houses and office buildings in the shipyard and immediately surrounding area are damaged to such an extent that they will have to be demolished. Formal statements issued by local government and naval officials highlight confirmed eye witness reports that the shipyards were hit by three separate waves immediately following the quake. The second wave is reported to have been 15 metres in height (the average height of the three waves being estimated at 10 metres).

The 180 ton capacity dockyard crane was knocked down by the waves and the four floating dry docks suffered a range of damages due the inundation of water and contact damage with vessels in the vicinity at the time of the incident. Practically all of the installations, workshops and laboratories in the naval dockyard have suffered physical damages, and the bay area and shoreline is full of damaged and displaced containers, vehicles, small work boats, fishing boats and tugs. According to senior naval officials, the majority of the 3,500 regular employees at the dockyard have lost all or virtually everything, which will seriously impact the return to work.

The principal concern of the local and naval authorities at this time continues to be security and strict controls of movements, including a curfew from 20h00m to 10h00m remain in place.

- **San Vicente (Port):** Local press reports on the condition and readiness of San Vicente to return to operational order are varied. The port is severely damaged. The port area and San Vicente Bay is full of debris including damaged containers, small work boats, a wide range of type and size of fishing vessels and significant loose floating debris. The main port area, quayside and associated warehouses are damaged and still pending structural inspection. The depth and nature of the sea bed (including the important consideration of any changes to main navigational channel depths and potential new obstructions caused by sunken objects or vertical distortion of the sea bed) is not currently known.
- **River Bio Bio (Road network):** 3 of the 4 North / South road crossings of the Bio Bio river have been severely damaged or destroyed by the earthquake. The one road crossing that remains intact is also damaged and restricted to light, one way traffic only. A number of emergency plans are under consideration including the conversion of a disused railway bridge and the construction of floating barge bridges (“Bailey Bridges”). In the meantime this major restriction of the major North / South arterial routes will significantly impact relief and renovation efforts, and also disrupt road transportation to and from the South of the country for some considerable time.
- **Industry in the earthquake zone:** Many companies with operations in the earthquake zone have made statements regarding their current operational circumstances and anticipated periods of inactivity pending structural / mechanical inspection and necessary repair or replacement of damaged installations. Manufacturing industries affected include, paper pulp, steel, cement, fisheries (fishmeal) – all with major operations in and around San Vicente bay, Talcahuano and the river Bio Bio. Most operators are predicting a period of at least 3 weeks (up to the end of March) before resuming activities. Apart from structural damage issues, companies are reporting that lack of power, water and basic services, will continue to cause restrictions in the coming period.

CSL Chile is an established and respected operation with dedicated local marine resources ready to support our clients’ surveying and adjusting requirements. Working with our local partners, our Regional Director, Jorge Viñuela, has a team of over 30 marine specialists including Master Mariners, nautical engineers and naval architects available to respond to this major incident. Our partner office in Talcahuano is staffed by three experienced surveyors.

CHILE EARTHQUAKE DAMAGE - REFERENCE MAP: Please see page 3 of this bulletin.

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CHILE EARTHQUAKE DAMAGE - Reference Map

