

**Environmental and Labor Issues:** This is a category III project according to the IIC's environmental and labor review procedure because it could produce certain effects that may be avoided or mitigated by following generally recognized performance standards, guidelines, or design criteria. The main environmental and labor considerations related to the project are: air emissions; underwater spills/leaks; solid waste and hazardous materials management; personal safety; fire protection and emergency response; and labor and social issues. An environmental impact assessment has been conducted for the project.

**Air Emissions:** The main source of air emissions consist of ethanol vapors that escape from tanker trucks, the terminal's storage tanks, and when loading into tanker vessels. Potential points of air emissions can result during the cargo handling process as well as from tank ventilation. Accordingly, a series of measures is available to mitigate this risk, which not only poses a threat to air quality but also to safety. Such mitigation measures include a closed-circuit system for unloading trucks that prevents the release of any vapors, use of the submerged discharge method to fill storage tanks so as to reduce vapor formation inside the tanks, a floating roof design inside tanks so as to reduce the amount of vapors forming on the surface of the liquid stored, sealing storage tanks via a pressure control system that employs activated charcoal gas scrubbers to reduce pressure and prevent air emissions, and painting tank surfaces white to reflect the sun's heat away and keep them from overheating. The company's pumping equipment meets international standards for the handling of this type of product and prevents leaks and spills. Tank floors are surfaced with impermeable materials and are equipped with collection systems that channel any spills to other tanks where they can be subsequently treated.

Other sources of air emissions include diesel-fired electric generators and water pumps used in the fire suppression system, both of which are used sporadically and in emergency situations. Air emissions from these sources are therefore minimal, and the maintenance of this equipment is required to be performed in accordance with the strictest of standards.

**Aquatic Environment:** The risk of underwater spills—due to leaks in or failure of the underwater feed line that connects to the vessel—is mitigated by the use of a system of valves (e.g., flange nipples, control and camlock valves) that prevents the flow of liquid cargo until such time as the connection is made. The underwater feed line is equipped with break-away valves on either end, which automatically shut off the flow of ethanol should the line become disconnected. Therefore, in the event of an accident, only small amounts of ethanol would be released and their effect on marine life, once dilute, would be negligible. In addition, the mooring system for tanker vessels is comprised of four buoys anchored to the seabed and is designed for vessels with 20,000 metric tons of deadweight tonnage. The mooring system displays the nautical marks required by the Hydrography and Navigation Department of the Peruvian Navy. While moored, three buoys are used at the stern and one at the bow, in addition to the vessel's anchor.

**Solid Waste Management:** Solid waste includes domestic waste generated by employees and that resulting from maintenance activities. In the case of the former, such waste is not very substantial owing to low staffing levels. This type of waste is disposed of at municipal dumps. Waste generated through maintenance operations may contain hazardous materials. Consequently, these materials are treated by a waste treatment operator. In addition, the terminal has a solid waste management plan in place.

**Personal Safety and Emergency Response:** Safety activities at the Penta Tanks project are comprised of land and maritime operations.

The most essential aspects of land operations involve preventing fires and explosions. In addition to the measures to prevent spills and leaks described above, the terminal is also equipped with a fire

alarm and fire suppression system. The fire suppression system uses water as a coolant and foam to suppress and extinguish fires. The water-cooling system is comprised of two diesel-fired water pumps, a 2,000-cubic-meter water tank, a pressurized water distribution circuit, a network of monitors, as well as sprinklers affixed to the walls of the tanks. The fire suppression system is comprised of a 1,400-gallon foam concentrate storage tank, foam generating equipment, and foam applicators installed above the floating roof of ethanol storage tanks.

The company's maritime operations manual establishes the safety measures to be followed during the mooring, connection, vessel loading, and subsequent unmooring processes. The manual establishes a series of procedures to be followed, including a pre-connection inspection of the vessel and monitoring throughout the entire process to ensure there are no leaks, spills, or other anomalies. It also requires the services of a diver to inspect underwater feed lines both before and after the cargo loading operation. The terminal has a tugboat and two support vessels to assist provide support for its maritime operations. The services of a pilot are required for vessel mooring and unmooring.

All personnel involved in ground and maritime operations are furnished with the appropriate personal protection gear they need to do their jobs. The terminal has an emergency plan in place that addresses natural phenomena (e.g., earthquakes and tsunamis), fires, spills and leaks, accidents, as well as acts of terrorism, sabotage, and vandalism. The plan provides for risk assessment, response procedures, and post-cleanup and remediation activities. Personnel receive periodic training and carry out drills under the supervision of the various emergency brigades. There is an established network of coordination and support agencies in the event of emergencies (e.g., National Port Authority; the Paita Harbor Master's Office; fire, police, and civil defense corps; Navy Search and Rescue Service, and Coast Guard).

**Labor, Social, and Community Issues:** The terminal is located some 4 km northeast of Paita, which has a population of approximately 70,000 residents. The company's maritime terminal in the port near Paita is currently undergoing expansion. The terminal is approximately 4 km south of Colán, a village of some 800 inhabitants, which depends primarily on fishing and summer tourism activities. The terminal is located in an industrial area with no adjacent buildings or construction. Consequently, no people or housing will need to be relocated.

At the time the application was submitted for approval of the automotive ethanol production project with Maple Etanol, a series of public hearings were held regarding the Paita tank farm and terminal, which are today Penta Tanks. The public hearing process began with a survey to assess the degree of the public's understanding, perception, and opinion of the project, which was followed up with a print media campaign disclosing information about the project, and the organization of a series of informational workshops to respond the questions and concerns of the community.

Penta Tanks workers receive medical coverage and employment benefits through the Peruvian social security health insurance system (EsSalud). Under Peruvian law, employees are free to choose and join labor unions.

**Monitoring and Reporting:** Penta Tanks will prepare an environmental and social action plan (ESAP) to ensure compliance with national regulations and with the IIC's environmental and occupational safety and health guidelines, and will also establish mechanisms for resolving disputes and integrating with the community. In addition, it will also submit regular progress reports on the implementation of the ESAP.