

PPQ Deputy's Safeguarding Award Submission Form

1. Name, Address, Organization and Job Title, and Phone Number of Nominee (if a group is being submitted, provide the contact information for the entire group)

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2. Describe the action that enhanced safeguarding.

The PPQ-CPHST Treatment Quality Assurance Unit (TQAU), in collaboration with the National Science Foundation's Center for Integrated Pest Management (NSF CIPM) at NC State University, developed a web-based information solution for recording and tracking data from quarantine cold treatments. This online 556 Cold Treatment Tracking System ("556") is an application used by foreign National Plant Protection Organizations (NPPO's), International Services personnel at ports of lading, and PPQ personnel at ports of entry for in-transit cold treatments in containers and vessels. The 556 takes its name from the old cold treatment paper form with the same identification number.

Cold temperatures have been utilized for insect control for decades, where data confirm that rigid application of specified temperatures over prescribed time periods effectively

eliminates risk from specific pests or pest complexes. These cold treatments may be conducted in 1) a transporting vessel's refrigerated compartments, 2) containers cooled by a vessel's refrigeration system, or 3) individually refrigerated containers. In each case, the vessel or container is certified by TQAU as possessing approved equipment and configurations. Upon arrival of vessels with in-transit cold treatments, PPQ officers are responsible for reviewing data and approving or failing treatments based on whether the treatment parameters stipulated in the APHIS Treatment Manual are met.

These data were historically generated and archived as paper-based charts and forms, leading to inefficiency, inconsistency, and limitations in our ability to generate summary reports and analyze datasets. The 556 Cold Treatment Tracking System was created to remove dependence on the antiquated paper system and take advantage of the efficiencies provided by web-based data systems. The 556 provides a suite of online tools that increase standardization and efficiency. These include:

- Foreign officer role (Port of lading): Authorizes NPPO data entry at port of lading and initiates a process of alerting port of entry of the transit and estimated arrival date of cold treated cargo via electronic notifications.
- PPQ officer role (Port of arrival): Decreases PPQ officer burden for data entry while facilitating convenient data access; allows efficient targeting of shipments with problem treatments.
- Data upload and automated chart analysis: Allows treatment data to be uploaded electronically; automatically analyzes chart data significantly faster than manual chart review; performs analysis such as pattern recognition that are very difficult to perform manually; standardizes processes across staffs and locations.
- Cargo and resource management: Issues advance notification of cargo arrival which increases PPQ resource allocation efficiency; aids in identification and logging of cargo transfers.
- Searching and reporting: Fully searchable system allows users to quickly find reports based on multiple criteria, customized reporting system provides summary statistics.
- Verification: Integration with PPQ Certified Container and Vessel Database provides real time checks that ensure only certified equipment is used.
- Security: The 556 is password protected and only users trained in cold treatment and use of the system are granted access.

Finally, the 556 Database has a newly operational feature offering remote monitoring of in-transit cold treatments via satellite links. This remote monitoring system utilizes computer networks that link the container with shipboard communications systems. These shipboard systems are satellite linked to a Johnson Controls system which has been linked to the 556 system. Treatment data flows from the container to the 556 where it is analyzed. After the analysis is complete, a message indicating the treatment status is returned to the ship. When fully deployed, this system will allow treatments to be cleared prior to arrival in the US port of entry. Large efficiencies will be gained for industry including reduced storage fees at ports, longer market times for commodities, and immediate knowledge of treatment failures. Additionally, PPQ will benefit from faster and more accurate analysis of treatment

data and improved targeting of problem treatments.

3. How did the action enhance safeguarding?

The components of the integrated web-based 556 electronic intelligence system described above represent the safeguarding foundation of a real time information management solution. The components are linked and interconnected whenever possible to other PPQ systems, to each other, and to novel applications as they become available, all of which provide transparency in our regulatory requirements. This system facilitates trade by improving transparency and information exchange between regulatory agencies and the public. The 556 system is integrated with the treatment manual index and the vessel and container databases so that foreign data is integrated to support treatment decisions. The 556 system also makes related information available to foreign cooperators during data entry such as the list of certified vessels and containers.

The Stakeholder Review states: “Databases are the key to information storage and efficient retrieval of information.” and “Internet technologies have changed our concepts and definitions of databases”. TQAU has aligned its mission with these statements and continues to design and deliver products which store information efficiently for APHIS. Further, system integration creates added value by tying resources together. This product delivers information quickly through easy to navigate interfaces that require no software other than a web browser.

Finally, multiple stakeholder details are tracked, including training of foreign cooperators. System security features ensure compliance and exclude non-trained individuals so cold treatments are conducted and overseen only by approved personnel. System data analysis functions ensure clearance of obvious treatment successes in a timely manner while focusing staff attention on the ones that are more difficult to assess.

4. How does it demonstrate innovation or initiative?

These products were developed through collaboration with the NSF CIPM, which possesses unique expertise in building information management systems for agricultural applications. All PPQ web systems hosted by CIPM have been through the APHIS waiver process and satisfy Agency and Departmental security requirements. The PPQ systems collaboratively developed with this group are the first of their kind (i.e. University IT collaborations) in APHIS to achieve this designation.

TQAU followed no pre-existing mandate or guidance in this endeavor; this solution was developed from concept (2005) to implementation using existing resources locally, in addition to limited expenditures for the cooperative agreement. During this process, input was solicited from the ports in each region, APHIS IS, industry, and NPPO's to ensure stakeholder needs were addressed.

No other regulatory agency in the world has a system like the 556, which integrates satellite data feeds from shipping lines, communication equipment from Johnson Controls, and software produced by CIPM to track, analyze and monitor cold treatment data.

5. Which of the four areas of the Safeguarding Review does the activity support?

Check one:

- Gathering and use of international information about pests/pathways
- Exclusion
- Pest Detection and Response
- Permits (managing the movement of pests through permit systems)

6. What recommendation or safeguarding principle does the action support? Cite a specific recommendation from the review or the principle reflected in a recommendation or series of recommendations.

1.3 Leadership

Recommendation 16 (p. 18): Identify Agency activities that directly fulfill the mission, then out-source, privatize or otherwise re-assign the remaining activities.

Note: NCSU's NSF CIPM has been engaged via cooperative agreement to collaborate on this IT solution.

1.5 Stakeholder collaboration in APHIS programs and policy development

Recommendation 29 (p. 27): Encourage stake holders to get more involved in identifying and reporting pests, and other activities that would benefit from a greater "field" presence.

Note: The 556 electronic form requires foreign NPPO's to enter data at the port of origin. This data is forwarded to the port of destination to alert PPQ that a container or vessel is in-transit to their port.

Recommendation 31 (p.27): Seek opportunities to involve stake holders in information sharing activities such as situational briefings and cross-training.

Note: All of the e-data exchange in our system is between APHIS and our stakeholders.

1.7 Research and Technology Development

Recommendation 43 (p. 32): Develop cooperation between agencies within USDA, other Federal agencies, academic institutions and industry research organizations to discuss research priorities established by the Agency and determine the best course of action to meet the needs.

Note: This initiative has been made possible through a cooperative agreement with NCSU's NSF CIPM. Research and development and market development groups within Maersk and Johnson Controls have contributed significant resources to the 556. These include developing new communications links, creating new software to ensure secure data transmission, and adaptation of communications hardware.

1.10 International Services

Recommendation 58 (p. 37): Utilize IS field personnel in strengthening the data gathering systems in foreign countries. Engage their help in identifying resources that can assist in the data gathering programs.

Note: Cooperation and support from IS field personnel was integral to the success of training programs in Chile, Argentina, Italy, Turkey and Egypt. Of particular significance, members of IS-South America partnered with TQAU staff to provide training to Turkish NPPO's, while the Argentine FSN provided training to Uruguay (train-the-trainer).

Recommendation 60 (p.37): Work with IS management to provide training of in-country IS personnel on the needs of protecting U.S. plant resources and raise their understanding of the safeguarding system.

Note: International Services staff working in pre-clearance programs are trained in the use of this application. IS personnel and/or NPPO's are trained in the system.

2.32 Database Management

Recommendation E-117 (p. 68): Explore the feasibility of outsourcing data entry to reduce workload.

Note: The 556 electronic form assigns foreign cooperators responsibility for entering 40 data fields. This results in substantially reducing data input by PPQ at ports of arrival and eliminates the need for CPHST to input data. Prior to adopting this system, paper forms were physically transported to CPHST and data was entered manually.

7. Provide any information that demonstrates the outcome/success of the activity.

- This system was initiated in October 2005 with an NPPO training session in Italy. Since then, NPPO and International Services staffs in Argentina, Chile, Peru, Uruguay, Turkey, and Egypt have been trained to use the system. Additionally, training sessions have been held at PPQ port offices that process cold treatments. A total of 283 active foreign and domestic users are now working in the 556. All countries which ship commodities under cold treatment are being scheduled for 556 training.
- A significant amount of cargo has been processed through the system. As of August 30, 2007, a total of 1,498 containers have been entered into the system with a total of 3,540,880 cartons of fruit. This system boasts a 97.6 percent success rate for in-transit cold treatments of containers.
- The 556 has resulted in a significant reduction in the amount of time required to process cold treatments for PPQ officers and industry. Discussions with marine surveyors indicate savings of up to one hour per container have been realized by using electronic treatment charts. PPQ officers indicate that the combination of reduced paperwork and the automated analysis system can reduced the time required to analyze and document a treatment to as little as five minutes, compared with 45-60 minutes for paper charts and forms.
- The time required to resolve cold treatment issues has been significantly reduced. Because the system allows access to the same information by multiple users, information can be quickly exchanged and decisions made efficiently.
- Automated error checking routines and verification of container and vessel certification

has drastically reduced errors. The system is specifically designed to block non-conforming data and has resulted in a very clean and easy to work with dataset.

- Treatment failures are tracked by system, whereas the previous paper-based system did not record failures. Analysis of failure data provides important information for targeting of high risk shipments. Additionally, treatment quality can be improved by identifying equipment or procedures that result in failed treatments.

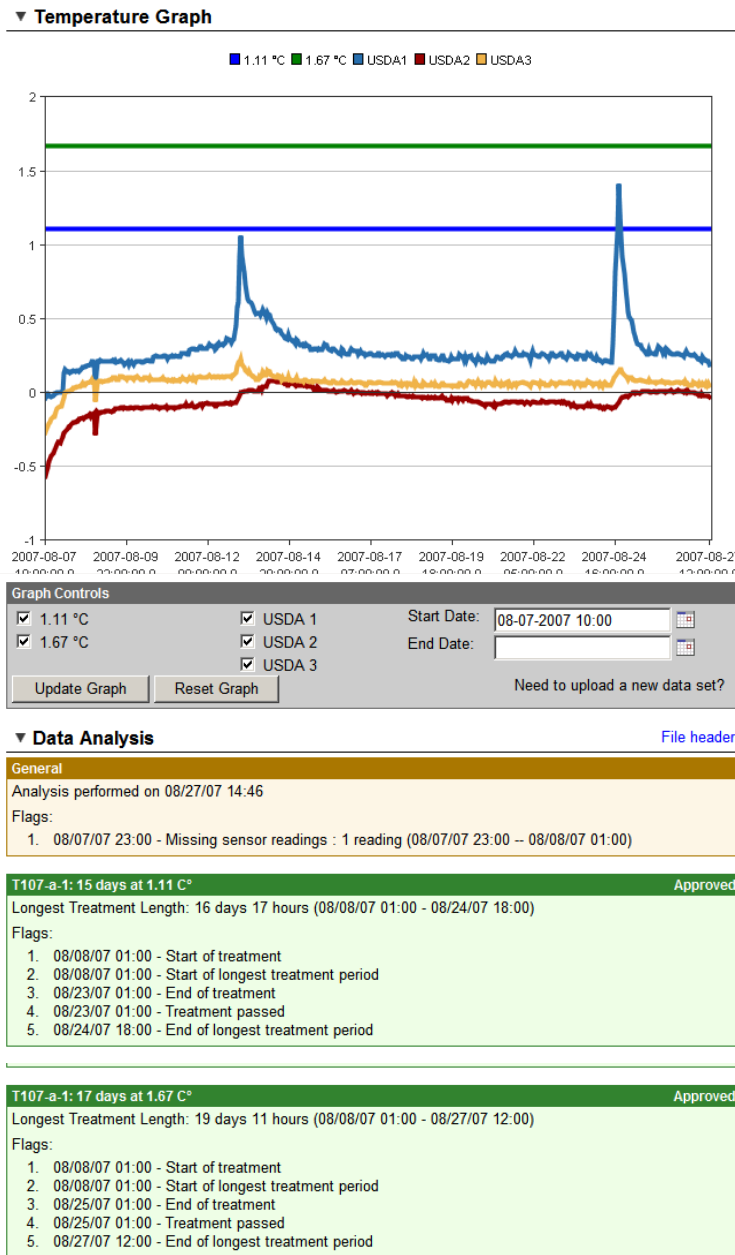


FIGURE 1. PPQ officer’s view of the temperature graph (top) and results from the automated chart analysis (bottom).



556 Cold Treatment Data Summary

Country Activity for All Treatments.

Cargo arriving between 10-01-2005 and 08-31-2007

Peru	Entry	Treatment Status	Containers	Cartons
Mandarin				
	Howland Hook, NY			
		Failed - Facility Treatment	5	33,800
		Failed - POE Treatment	1	8,000
		Failed - T&E - Canada	2	9,888
		Failed - T&E - Other	1	2,200
		Passed	39	193,575
	Long Beach, CA			
		Passed	8	48,718
	Philadelphia, PA			
		Failed - T&E - Canada	1	1,496
		Passed	27	67,734
	Newark, NJ			
		Failed - POE Treatment	1	8,400
		Passed	64	337,847
Country Total			149	711,658
Total			149	711,658

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FIGURE 2. Example of a summary report generated by the 556.