Cruise Ship Program Overview

Department of Environmental Conservation

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Cruise Ship Program

- Program staffing
- Statutory Authority 46.03.460
- Terms and Conditions
- Independent Verification
- Allows department to monitor and supervise discharges
- Registration Required (AS 46.03.461)
- Collection and reporting of information
- Establishment of fees (AS 46.03.480)

Foreign Flagged Vessels

- Internationally flagged vessels are governed under the International Maritime Organization (IMO) and International Convention for the Prevention of Pollution from Ships (MARPOL)
- United States Coast Guard (USCG) retains port state control
- DEC regulation begins at ambient air when exiting the vessel stack
- Program began prior to ballot initiative that created Ocean Rangers (Method 9 has been in use since at least 1975)

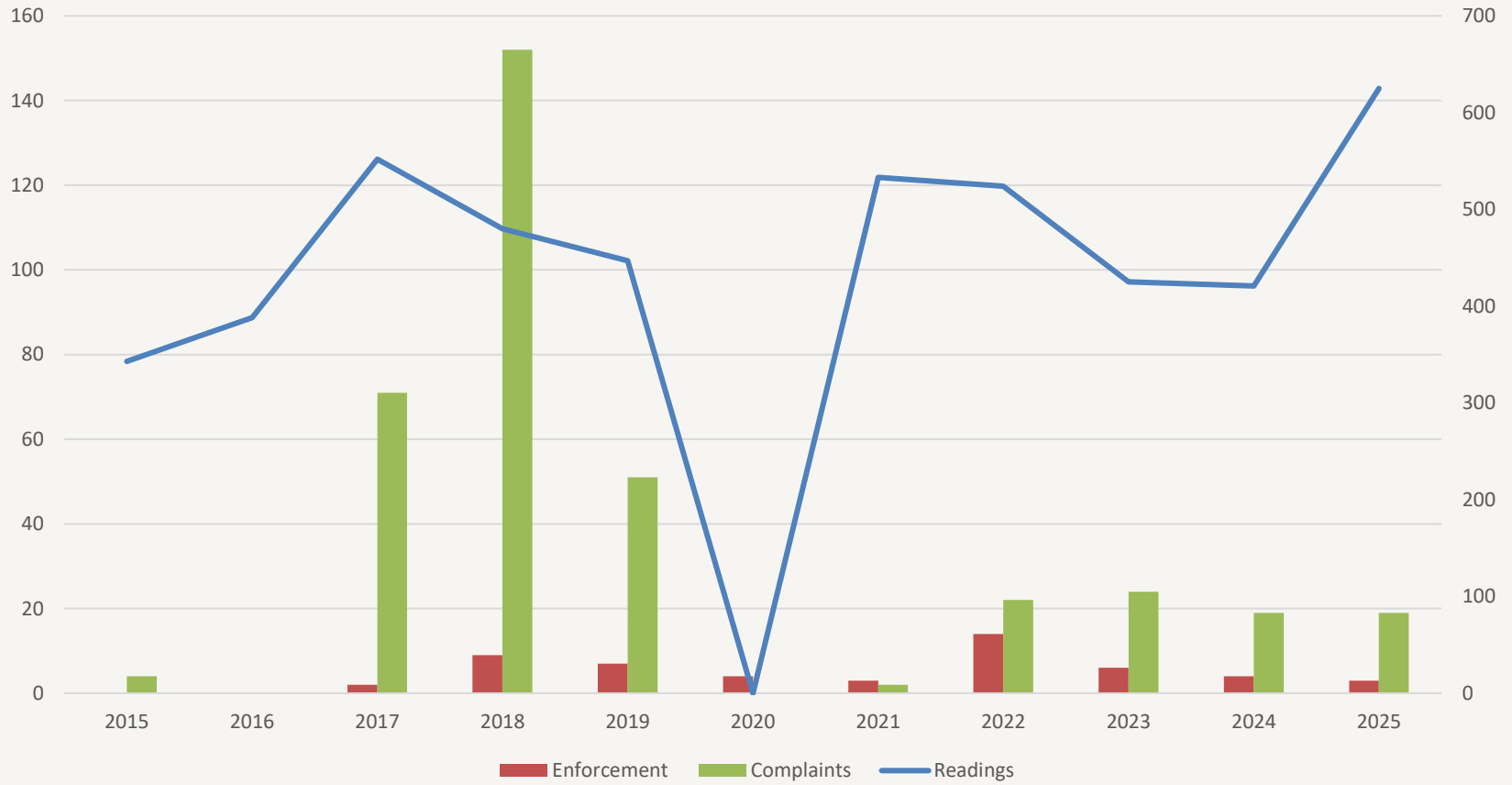
Air Quality Cruise Ship Regulations

- 18 AAC 50.070 Marine Vessel visible emission standards
  - …visible emissions, excluding condensed water vapor, may not reduce visibility through the exhaust effluent of a marine vessel by more than 20 percent, except…
- Environmental Protection Agency (EPA) Reference Method 9
  - Visual determination method used to measure the opacity of emissions from stationary sources, such as smokestacks
- Opacity Contract and U.S. Forrest Service (USFS)
  - DEC maintains a contractor to perform additional Method 9 observations throughout Alaskan ports of call. Additionally, DEC maintains a Memorandum of Understanding (MOU) with the U.S. Forest Service for monitoring in Holkham Bay, Tracy Arm, Endicott Arm, and/or Stephens Passage
- Additional Monitoring
  - 2019 Juneau Saturation Study
  - Community Sensors: Ketchikan, Juneau, Haines, Skagway, and Sitka

Method 9 Observations

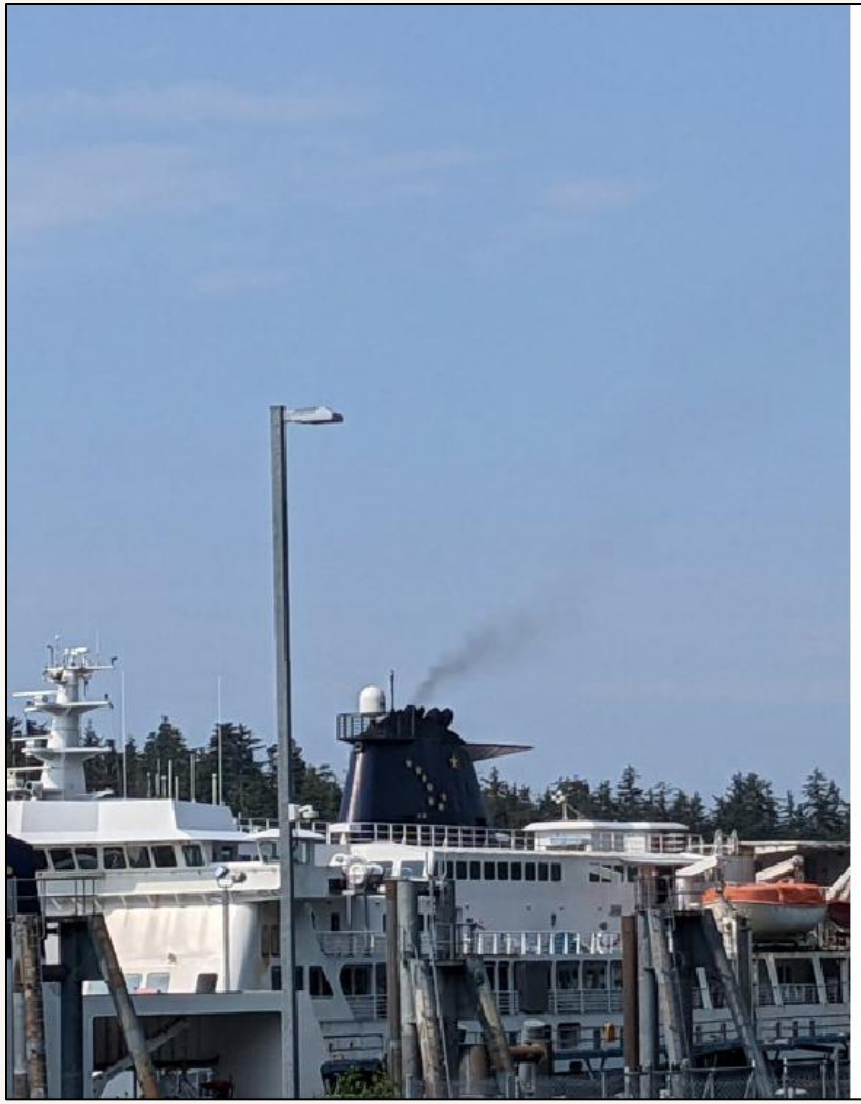
- MUST be performed from shore
- ZERO observations from Ocean Rangers
- Negative and positive biases exist when observing vessels; visual emissions require certified observers and quality assurance procedures
- Opacity as a surrogate to Particulate Matter (PM) conditions exist in nearly every Air Quality permit across Alaska
- Uptick around 2018 correlates with fleetwide scrubber use; water vapor creates 100% opacity and is excluded from regulation

Air Quality Compliance & Enforcement



Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Readings	343	388	552	480	447	0	533	524	425	421	625
Enforcement	0	0	2	9	7	4	3	14	6	4	3
Complaints	4	0	71	152	51	0	2	22	24	22	19

Example Observation



AMHS Ferries Visible Emission Observation Form

Company: AMHS
Cruise Ship: Kennicott
Location: JNU - Ferry Terminal

Process Equipment	Operating Mode
Control Equipment	Operating Mode

Describe Emission Point: Main Stack

Height Above Sea Level (feet)	Height Relative to Observer (feet)
91	71

Distance From Observer (feet)	Direction From Observer (degrees MNC)
Start 139 End ✓	Start 190 End ✓

Describe Emissions: Start Coming End

Emission Color	Steam Plume
Start black End ✓	Start NO End ✓

Point at which the opacity was determined (feet above exit): Start 10 End ✓

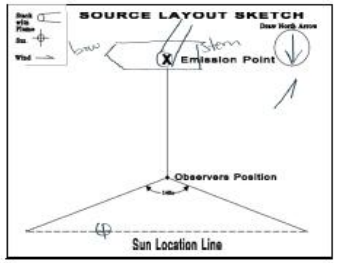
Describe Plume Background: Start clouded sky End ✓

Background Color	Sky conditions
Start white End ✓	Start broken End ✓

Wind Speed (knots)	Direction Wind From
Start 12 End ✓	Start NE End ✓

Ambient Temperature (° F)	Relative Humidity (%)
Start 55 End ✓	Start 73 End ✓

SOURCE LAYOUT SKETCH



The North Arrow in the drawing above is from a Magnetic Compass Reading, MNC (not corrected to true North).

A √ in an "End" Field means the same conditions existed at the start and end of reading.

Observation Date	Start time:	End time:
07/05/22	09 : 25	09 : 55

Readings every 15 seconds

Comments: total photos: 3 total videos: 1

Min	0	15	30	45	
1	60	60	60	60	photo #1
2	60	60	40	40	
3	40	60	60	70	video #1
4	70	70	70	70	
5	70	70	70	70	
6	70	70	70	80	photo #2
7	80	80	70	70	
8	70	70	70	70	
9	60	60	60	60	
10	60	60	60	60	
11	60	60	60	40	
12	40	40	40	40	
13	40	40	40	40	photo #3
14	40	40	40	60	
15	60	60	60	60	
16	60	60	60	60	
17	60	60	60	60	
18	60	60	60	60	
19	60	60	60	60	
20	70	70	60	60	
21	60	60	60	60	
22	60	60	60	60	
23	60	60	60	60	
24	40	40	40	40	
25	40	40	40	40	
26	40	40	60	60	
27	60	60	60	60	
28	60	60	60	60	
29	60	60	60	60	
30	60	60	60	60	

Observer's Name (Print): Amie Spieth
Observer's Signature: Amie Spieth — Date: 07/05/22
Certified By: Alaska Environmental Resources, LLC — Date: 04/01/2022
VEO Form Number (ADEC Use Only): AMHS VEO FORM — Date: 03/08/2022

ADEC Use Only: QA Audit ☐Valid ☐Failed
Auditor Name:
Audit Date:

Future Monitoring Efforts

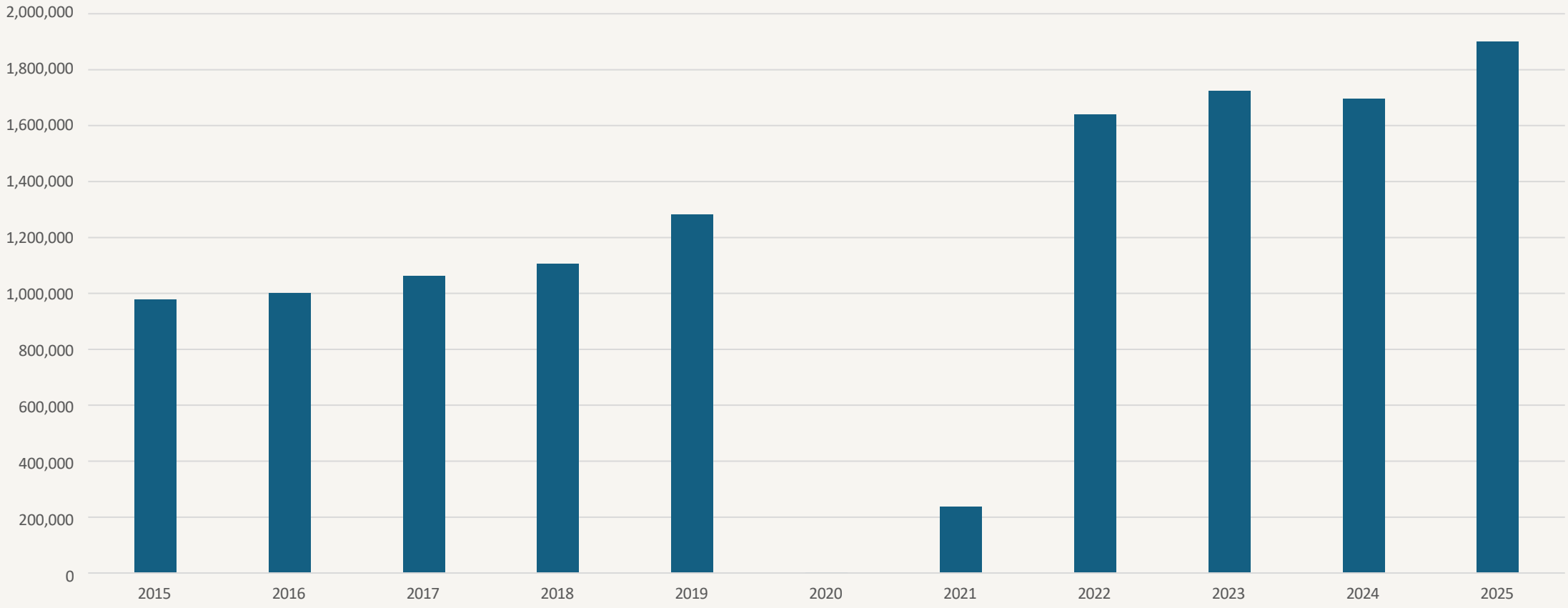
- DEC is working with Cruise Lines International Association (CLIA) and cruise lines together to share and review opacity monitoring data from onboard opacity sensors
- Electronic opacity sensors have existed across industry in Alaska for decades, cruise lines have used them internally for many years
- Meeting regulatory standards under the U.S. EPA Performance Specification 1 for these systems requires careful review and quality assurance

Water Quality Program Overview

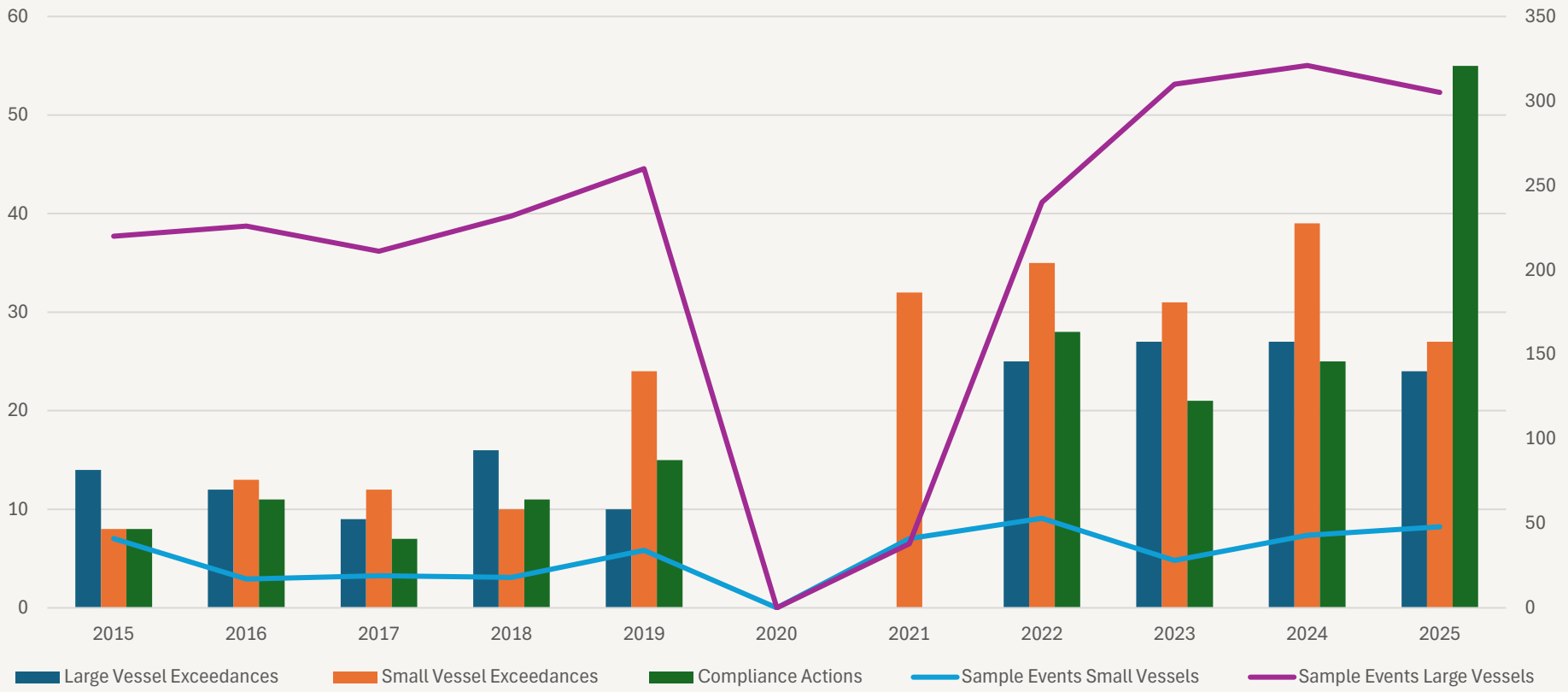
- Commercial Passenger Vessels
  - Small 50 - 249 passenger berths
  - Large 250+ passenger berths
- All vessels must register annually (18 AAC 69)
- Alaska Large Vessel General Permit authorizes the discharge of treated graywater and sewage
- Small vessels must apply for a Small Vessel Best Management Practices Application if they intend to discharge in Alaska
- Discharges other than treated graywater and sewage are regulated by the EPA Nationwide Vessel General Permit
- Division Inspectors board each vessel twice annually; once underway and once in port

Alaska Cruise Ship Passengers

Total Alaska Cruise Ship Passengers per Year



Water Quality Compliance & Enforcement



Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Sample Events Large Vessels	220	226	211	232	260	0	38	240	310	321	305
Large Vessel Exceedances	14	12	9	16	10	0	0	25	27	27	24
Sample Events Small Vessels	41	17	19	18	34	0	41	53	28	43	48
Small Vessel Exceedances	8	13	12	10	24	0	32	35	31	39	27
Compliance Actions	8	11	7	11	15	0	0	28	21	25	55

Questions?

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