

Boston 6th June 2016

Concurrent Session 2 : Helen Bradley, Andreas Graham, Daniel Jaeger



HOW TECHNOLOGY REVEALED THE TRUTH BEHIND TIANJIN

Antitrust Notice

- The Casualty Actuarial Society is committed to adhering strictly to the letter and spirit of the antitrust laws. Seminars conducted under the auspices of the CAS are designed solely to provide a forum for the expression of various points of view on topics described in the programs or agendas for such meetings.
- Under no circumstances shall CAS seminars be used as a means for competing companies or firms to reach any understanding – expressed or implied – that restricts competition or in any way impairs the ability of members to exercise independent business judgment regarding matters affecting competition.
- It is the responsibility of all seminar participants to be aware of antitrust regulations, to prevent any written or verbal discussions that appear to violate these laws, and to adhere in every respect to the CAS antitrust compliance policy.



12th AUGUST EXPLOSION









Death toll in Tianjin explosions reaches 112; more than 90 still missing

By [Steven Jiang](#), [Will Ripley](#) and [Michael Pearson](#), CNN

Updated 0707 GMT (1407 HKT) August 16, 2015 | Video Source: [CNN](#)



DEVELOPING STORY

UNKNOWN NUMBER OF PEOPLE STILL MISSING IN BLAST



92m Diameter and 7.5m depth

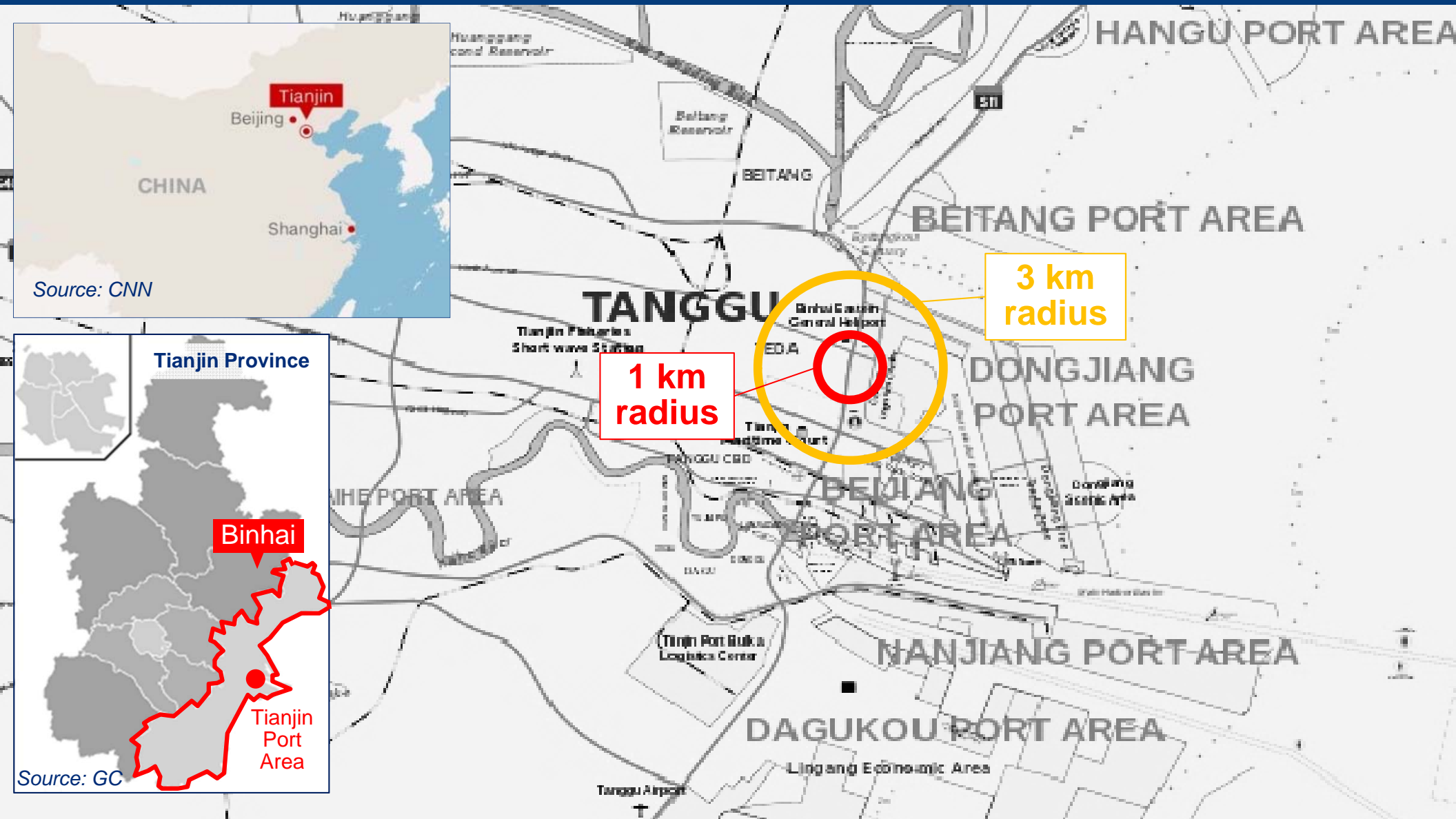


Scale of Devastation

Source The Guardian



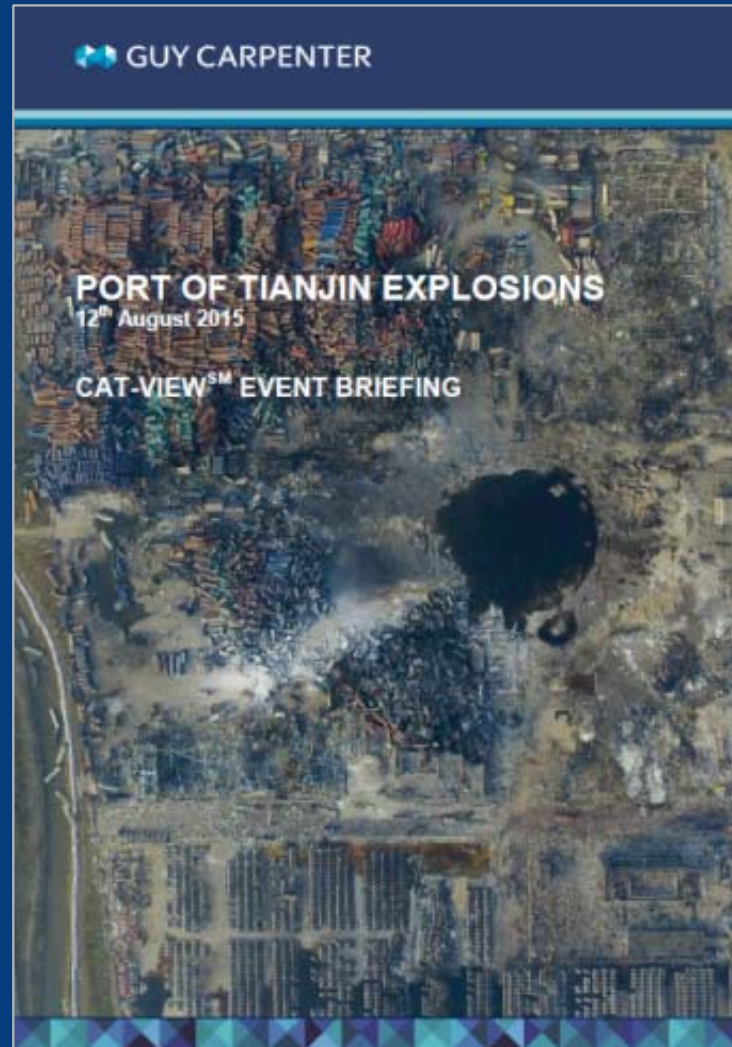
IMPACT ZONE



1. **Binhai New Area** = Formed 2007 as a Special Economic Zone. Development projects ongoing, including expanding the Port of Tianjin.
2. **Tianjin Port** = World's 4th largest port throughput tonnage & 9th largest container throughput (2013 figs)
3. **Growth** = Capacity increasing at a high rate. 550-600 million tonnes of throughput was estimated for 2015.
4. **Manufacturing** = China's largest chemical industry park. >50% Fortune500 in Tianjin, inc: auto, aerospace, mobile phones, semi-conductors, pharmaceuticals.
5. **Complex supply chains** = Especially automobile, 40% of China's cars imported through Tianjin



...and WHAT WE DIDN'T KNOW



Source: CNN

TECHNOLOGY TIMELINE

SPOT 1.5m

12th August
Pre-event Port
inventory



Skybox 1m

13th August
Smoke obscures
site



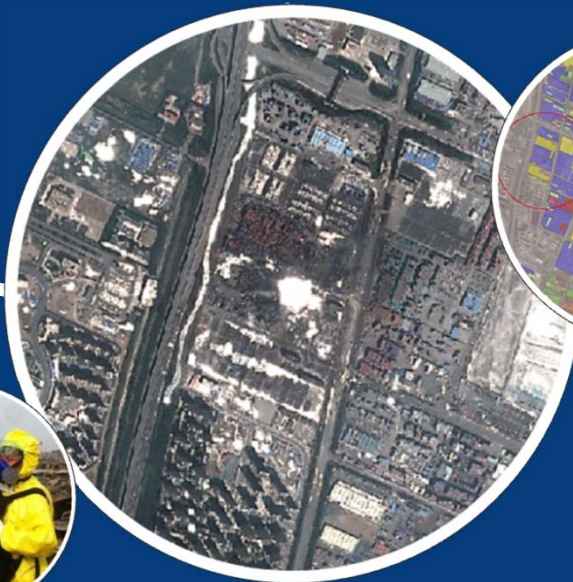
12th August
Explosion at Rui
Hai Logistics



Industry demand for
intelligence - but
access restricted

Pleiades 0.5m

16th August

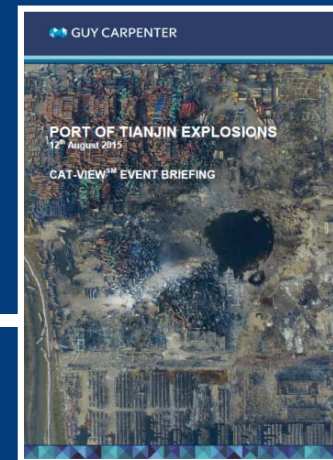


Loss estimation

Analysis and
modelling





Client demand for
claims support - but
access restricted



PORT LANDUSE



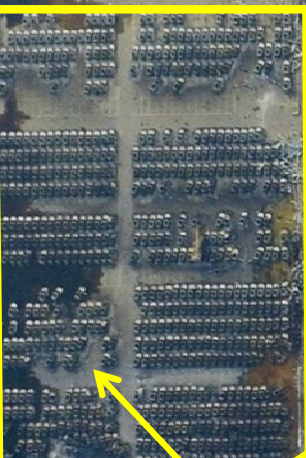
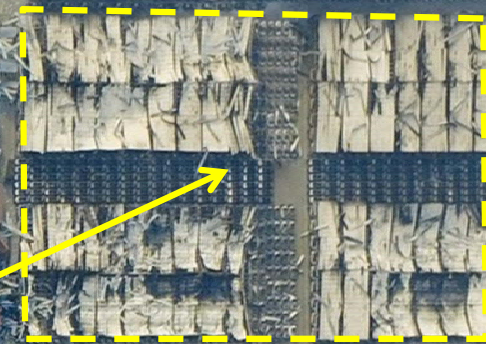
-  1: Container Storage Areas
-  2: Vehicle Storage
-  3: Solid Commodity Storage Piles
-  4: Liquid Commodity Storage Tanks
-  5: Warehouse Buildings
-  6: Refineries/Utility Infrastructure
-  7: Docks
-  8: Processed Commodity Storage Area
-  9: Other Buildings (e.g. residential)



Container Storage Area



Vehicle Storage



Buildings



LOSS ESTIMATE



	COUNT	LOW \$m	HIGH \$m	METHODOLOGY
1. Property (industry, warehouses, residential)	Various	614	1,228	Satellite + blast scenario + GC Industrial Park Database
2. Containers	20,000	20	60	Media + Satellite analysis
3. Cargo in containers	-	206	528	GC International Customs Database + Satellite analysis
4. General Aviation	4	Less than 7.5 million		Media + Satellite analysis
5. Vehicles (cargo and property)	+ 22,700	790	1,429	Media + Satellite analysis
	TOTAL	1,638	3,253	



Property Damage Analysis

Level 4 = No visible damage to the building



Level 3 = Structure and roof looks intact, but visible debris around the building

Level 2 = Visible roof damage and debris around the building

Level 1 = Building completely destroyed or has major structural damage

1 km radius

CARGO

Port Land use		Total Area (sq m)	<1km damage as % port total	<3km damage as % port total
1: Container Storage Areas		4,363,059	16%	41%
2: Vehicle Storage		1,855,610	11%	54%
3: Solid Commodity Storage Piles		3,185,550	2%	16%
4: Liquid Commodity Storage Tanks		4,536,287	0%	2%
5: Warehouse Buildings		6,186,790	2%	12%
6: Refineries & Utility Infrastructure		4,937,090	0%	0%
7: Docks		3,247,385	0%	0%
8: Processed Commodity Storage Area		1,395,429	0%	0%
9: Other Buildings		1,326,876	2%	9%

VEHICLES

Manufacturer	LOW ESTIMATE	HIGH ESTIMATE	
	August Media Reports	Vehicle count from image	
Audi	100	0-1 km impact zone	
BMW	2x distribution center <3km		1 4,100
Chrysler	3,000		2 2,900
Daimler/Mercedes	?		3 3,600
Ford	Potential impact	Total 10,600	
Fuji Heavy (Subaru)	100	1-3km impact zone	
GM	Potential impact		4 3,469
Hyundai and Kia	4,100		5 2,451
Mazda	50		6 10,572
Mitsubishi	600		7 1,722
Porsche	?		8 6,993
Renault	1,500		9 10,880
Land Rover/Jaguar (Tata)	5,800		10 4,413
Tessler	?		11 2,965
Toyota	4,700		Total 43,465
VW	2,750		
Grand Total	22,700	Grand Total 54,065	



THE TIANJIN STORY CONTINUES

+1 month

October 2015

March 2016



Source: Cunningham Lindsey



Source: Marsh Claims



Source: Zurich

TECHNOLOGY TIMELINE CONTINUES

SPOT 1.5m

12th August
Pre-event Port
inventory

Skybox 1m

13th August
Smoke obscures
site

September

Pleiades 0.5m

16th August
of 1km zone

Clearance estimation
Analysis and
modeling
Clearance complete
Claims info lost forever

October



12th August
Explosion at Rui
Hai Logistics

Pleiades 0.5m

13th September

Drone Footage

Industry demand for
intelligence - but
access restricted
**Captures some but
not all claims**
September 2015

Client demand for
claims support - but
access restricted

Pleiades 0.5m

16th February 2016



NORTH SITE



Date	# Vehicles
16/8/15	1,722
18/9/15	1,722
16/2/16	1,722

COMPLEX CLAIMS SITUATION



SOUTH SITE



Date	# Vehicles
16/8/15	6,993
18/9/15	7,035
16/2/16	2,262

DRONE IMAGERY (looking East)

Source: Cunningham Lindsey



IMAGE 1

Source: Cunningham Lindsey



IMAGE 2

Source: Cunningham Lindsey



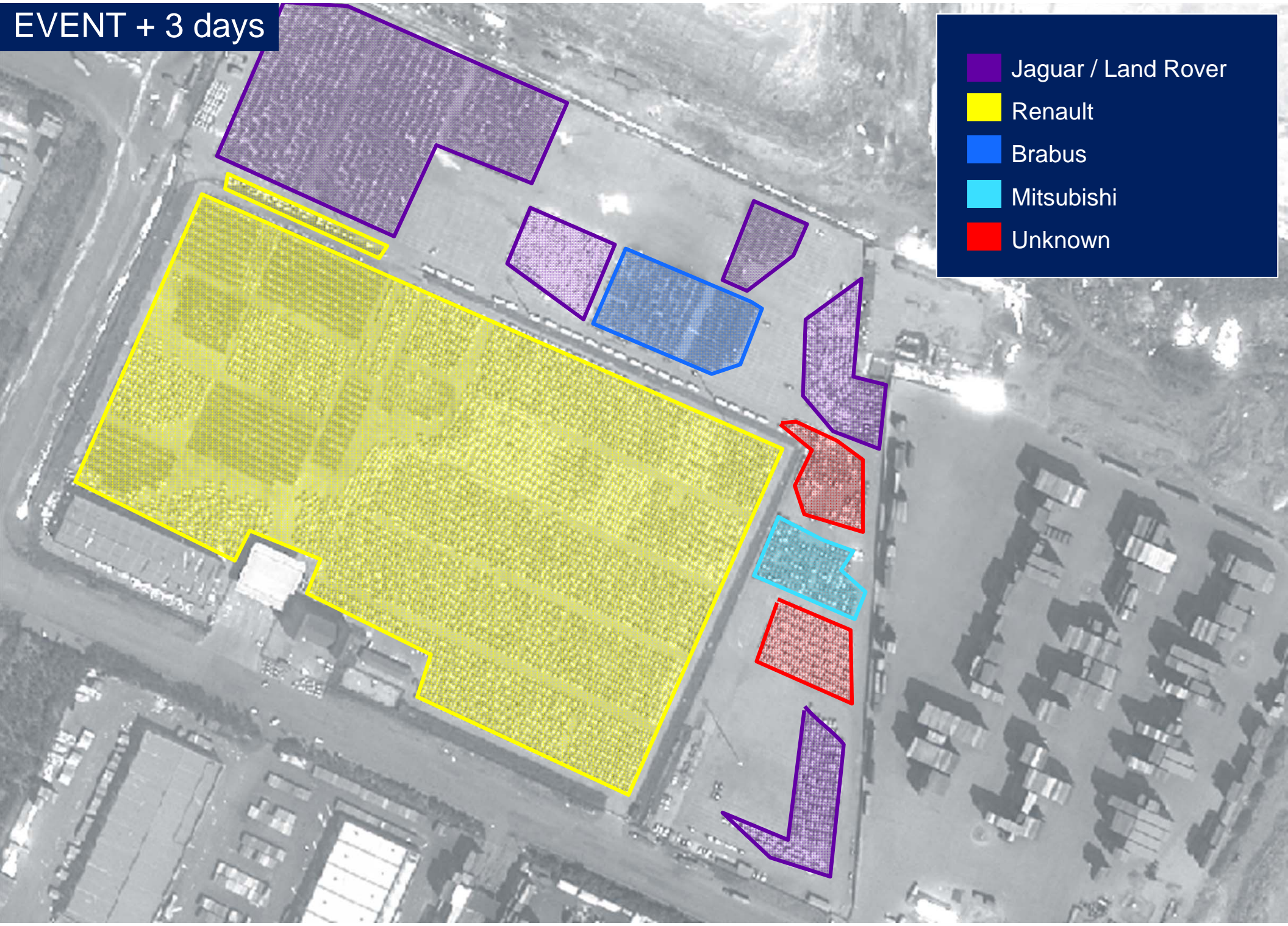
IMAGE 3

Source: Cunningham Lindsey



EVENT + 3 days

- Jaguar / Land Rover
- Renault
- Brabus
- Mitsubishi
- Unknown



EVENT + 3 days

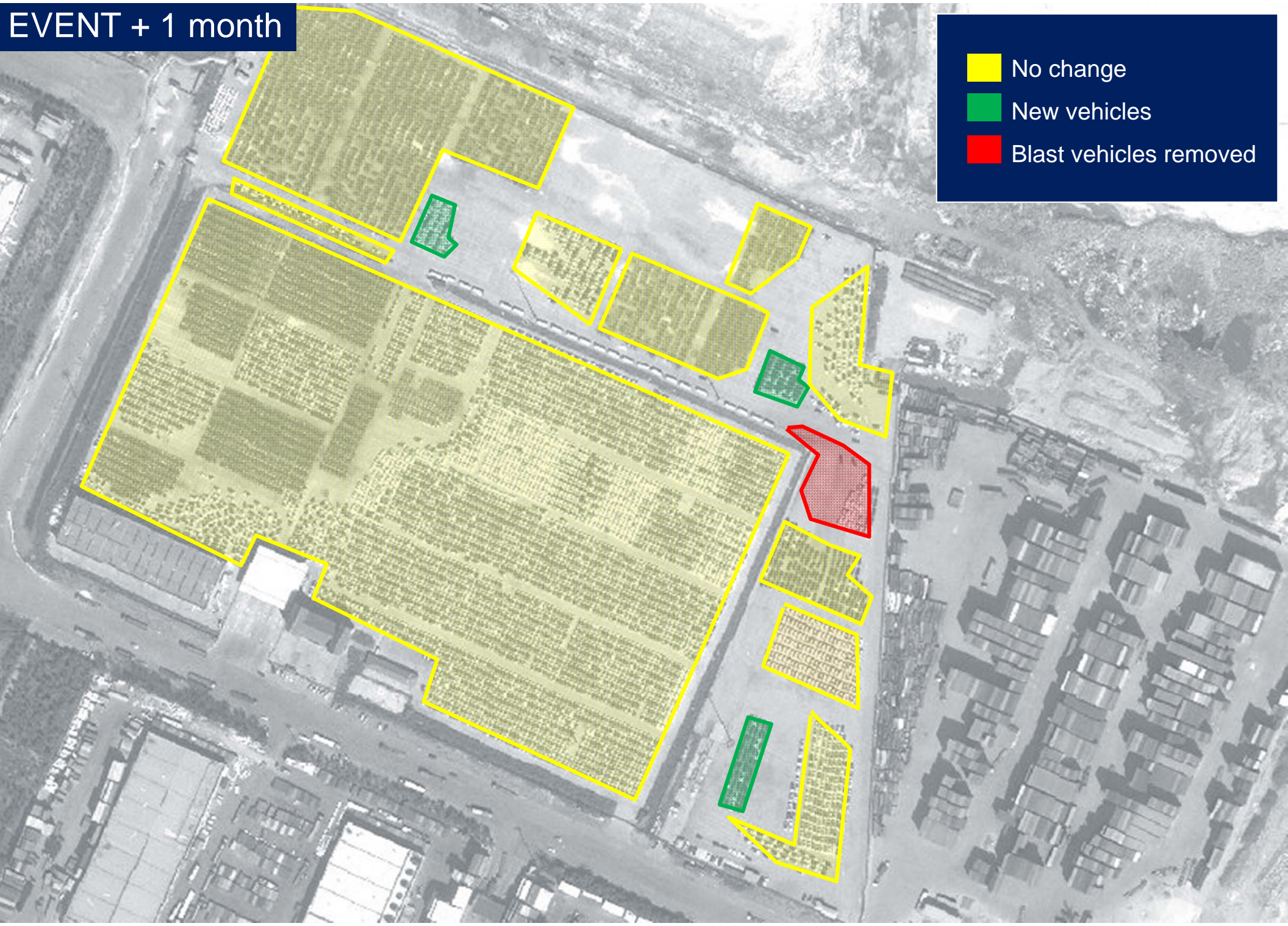


EVENT + 1 month



EVENT + 1 month

- No change
- New vehicles
- Blast vehicles removed






EVENT + 1 month

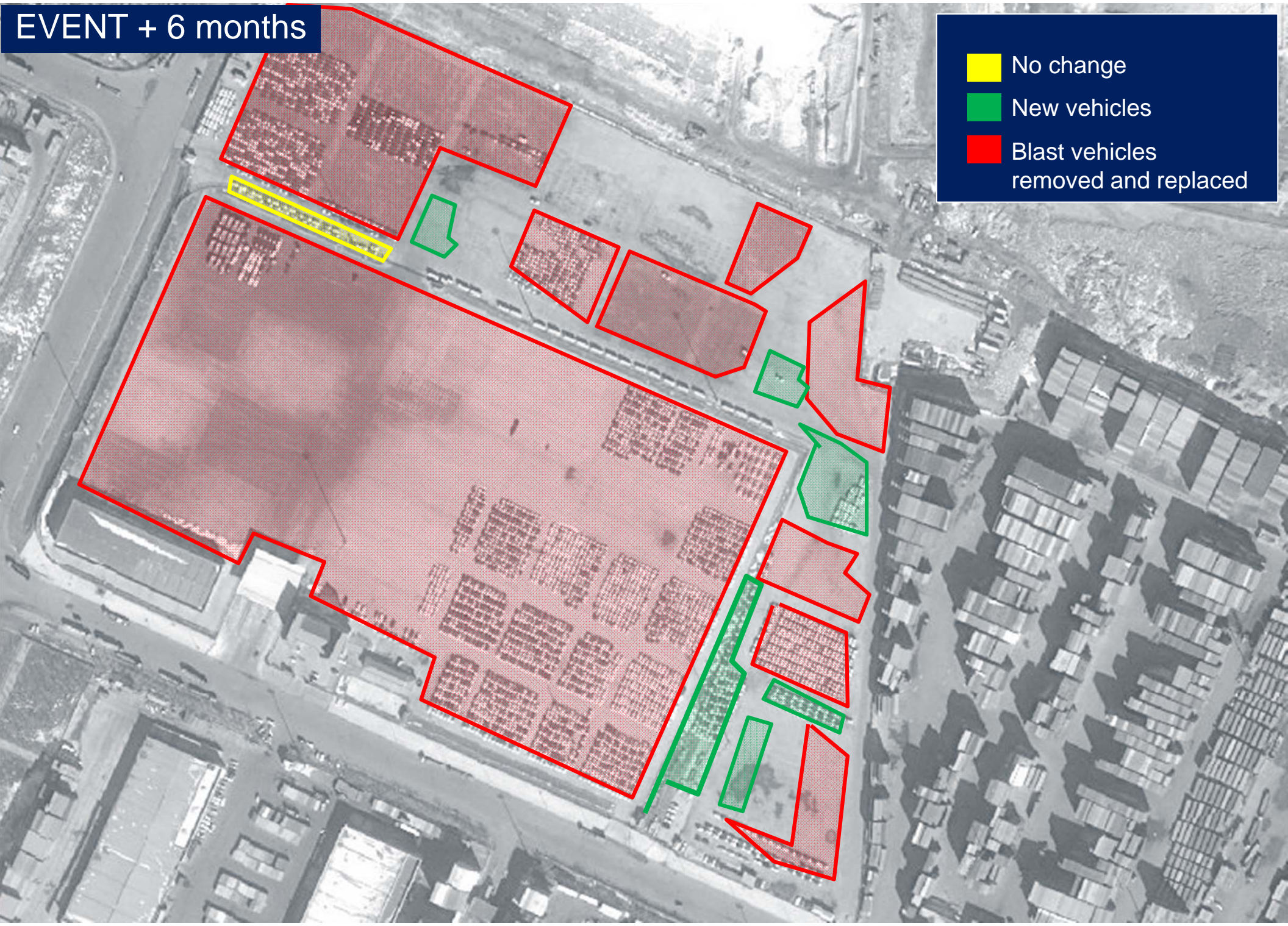


EVENT + 6 months



EVENT + 6 months

-  No change
-  New vehicles
-  Blast vehicles removed and replaced



MELT DOWN

 GUY CARPENTER

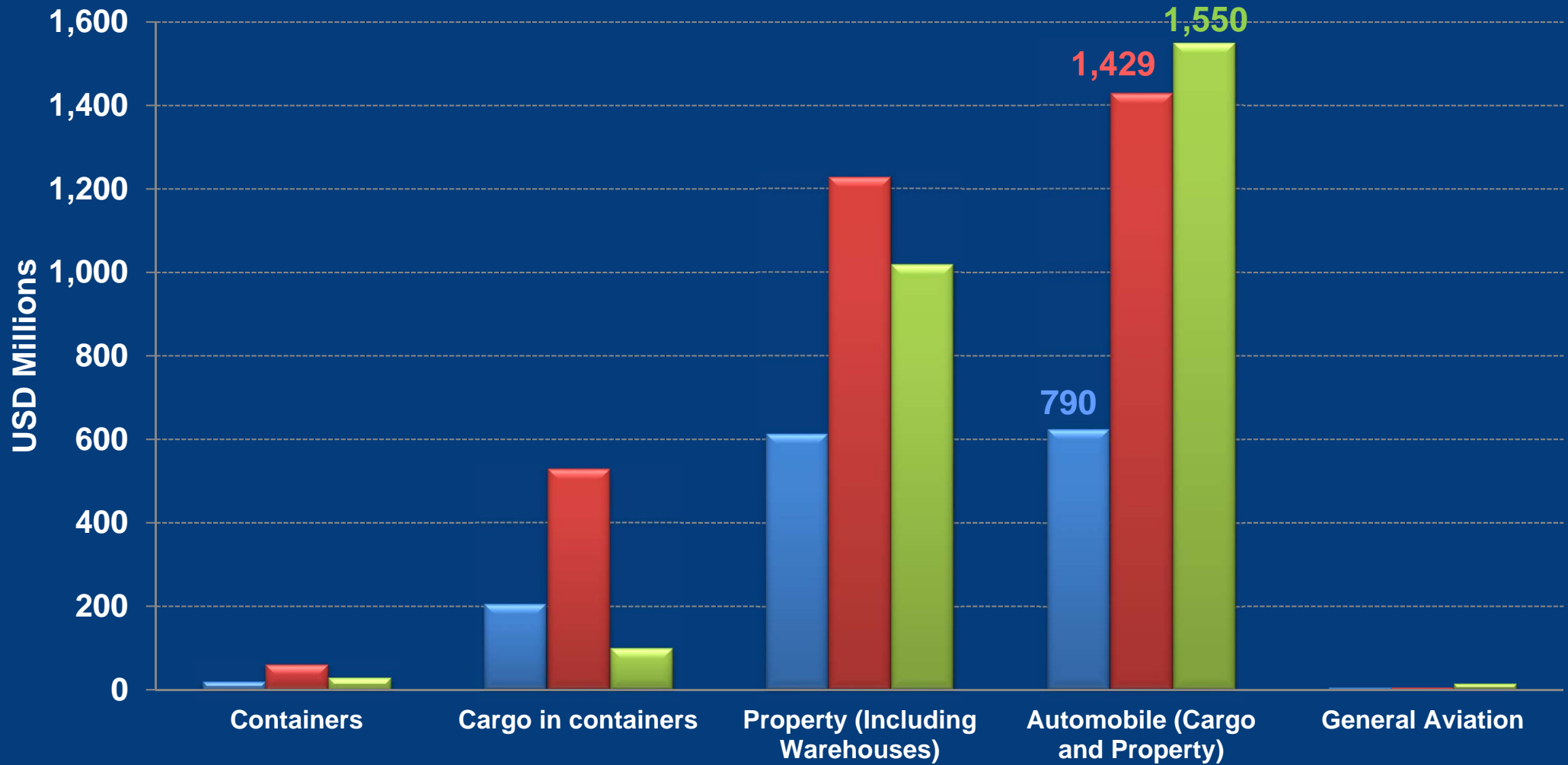




+6 MONTHS MARKET LOSS ESTIMATE



Low Estimate High Estimate March 2016



GC LOSS ESTIMATE DEVELOPMENT

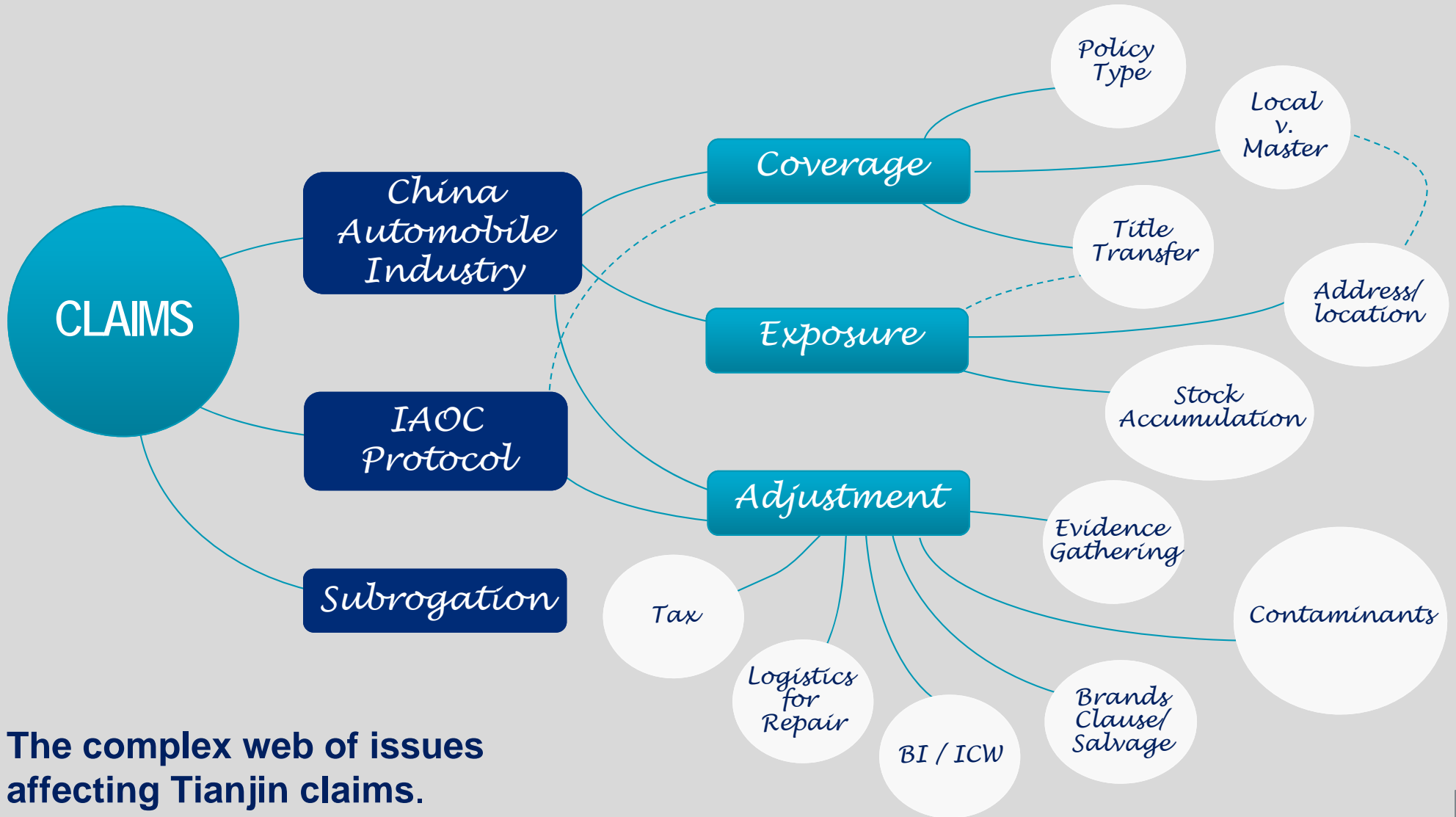


	LOW ESTIMATE \$m	HIGH ESTIMATE \$m	MARCH 2016 \$m
Property (Industry, Warehouses, Residential)	614	1,228	1,019
Containers	20	60	29
Cargo in Containers	206	528	100
General Aviation	Less than 7.5 million		14
Vehicles (Cargo and Property)	625	1,429	1,550
TOTAL	1,473	3,253	3,140

WHERE ARE WE TODAY ?



Manufacturer	Claim Count #		Loss \$		Status
	August 2015	March 2016	Marine	Property	
1. Audi	100	No info	Maybe included in VW?		No info
2. BMW	2x distribution center <3km	7,700	\$112m	?	Under investigation (CL)
3. Chrysler	3,000	>23,000	\$8m	-	Cleaning & Sold at auction
4. Daimler/Mercedes	?	7,083	\$90m	-	
5. Ford	Potential impact	~100	?	-	
6. Fuji Heavy (Subaru)	100	1,750	\$17-21m	-	Ongoing investigation
7. GM	Potential impact	~100	£3m (M or P?)		
8. Hyundai and Kia	4,100	4,100	-	-	Total loss (burned)
9. Mazda	50	~120	-	-	Claims finalised (minor damage)
10. Mitsubishi	600	~850	-	-	Ongoing investigation
11. Porsche	?	~750	-	-	Moving and testing
12. Nissan/Renault	1,500	7,725	\$263m		Total loss (brands clause)
13. Land Rover/Jaguar	5,800	5,800	-	\$379m	Cleaning/testing ongoing
14. Tessler	?	200-300	-	-	
15. Toyota	4,700	3,400	\$21-50m	\$12m	Repairs underway
16. VW	2,750	2,750	\$176m	\$176m	Written off (PICC)
17. Brabus	No info	No Info	-	-	Total loss (burned)
Grand Total	22,700	60,761			



The complex web of issues affecting Tianjin claims.



Top 6 Tianjin issues:

1. Contamination
2. Regulator
3. Gathering documentation
4. Brands Clause
5. Taxes
6. Local policy coverage issues

Plus major lesson learned:

1. Communication must be improved



1. Downturn in demand causing stock accumulation

Asia: Sales volume totaled 152,000 units, a year-on-year decrease of 9% or 15,000 units. In ASEAN, sales volume decreased to 99,000 units, a year-on-year decrease of 8% or 8,000 units due to a continued sluggish economy in Thailand. In North Asia, market growth has slowed down since beginning of this fiscal year in China, where sales volume decreased to 53,000 units resulting in a year-on-year decrease of 11% or 7,000 units. These negative factors affected the decrease of total sales volume for the region.

2. Disputes with dealers over discount / Joint Ventures affecting value

- *China's dealers' association said it had persuaded BMW to pay 5.1 billion yuan (\$824 million) in subsidies to dealers, while Porsche and Toyota Motor Corp. are also negotiating with their Chinese dealers over subsidies and sales targets.*

3. Grey Imports affecting value and tax

- *Existed to a limited extent in China for several years, especially in port cities Tianjin and Dalian. The Shanghai free trade zone has a 'car dealer' where new cars imported from other territories are sold. Due to price arbitrage, these vehicles can be significantly cheaper than the same vehicle available from the official distributor.*



1. **Timeline** - Issued September. Addendum December on taxes
2. **Unique event** – special guidance on “what to do”
3. **Coverage** – If unclear who pays, rules for settling (process with lead)
4. **Damage scenarios**
 1. **Total loss**
 2. **Constructive total loss**
 3. **Partial loss**
5. **Dispute** - Mediation strategy
6. **Expectation** – Regulator expects all claims to be complete by June 2016 or 10% penalty

4. Principles for Loss valuation

- a. **Total Loss:** Vehicles destroyed by fire shall be a total loss. Given the special circumstances, no salvage shall be recovered.
- b. **Constructive Total Loss:** Subject to the insurance policy terms, where the repair costs exceed 70% of the actual value of the vehicle (or exceed 50% of the insured amount), it shall be handled as if it is a total loss. After treating it as total loss, the insurance parties will jointly negotiate to deal with salvage in these three ways:
 - i. Total loss payment, salvage vehicle permitted for sale: recover salvage vehicle, and sell at auction;
 - ii. Total loss payment, salvage vehicle not permitted for sale but may be dismantled: recover salvage vehicle and dismantle for parts;
 - iii. Total loss handling, subject to the insurance policy terms, if clients refuse to sell the salvage vehicle and parts, and request the salvage vehicles be destroyed, the insurer can, according to the estimated auction price or assessment value of the salvage cars, deduct the relevant part from the compensation; in view of the special circumstances of this incident, if the insurers will negotiate with clients to jointly share the loss of salvage value, it is recommended that the insurers would not share more than 30% of the loss based on the auction price or inspection value of the salvage vehicle

After compensating in accordance with the total loss handling procedure, when the salvage cars are recollect and sell in auction together, it is necessary to provide the cars' VIN Codes, engine numbers, and damage particulars to the auction company, corporate and individual buyers, and publish ~~these~~ information to society through the industry association.

c. Partial Loss

- i. **Damage on paint only:** subject to the insurance policy terms, if the surface of the whole vehicle is damaged within 50%, the damaged part would be repainted. If there is 50% or more damage on the surface of the whole vehicle, it will be completely repainted.
- i. **Loss involving dents:** subject to the insurance policy terms, where repair costs (excluding paint costs) exceed 50% of the costs of replacement parts, the relevant parts should be replaced; if less than 50%, the relevant parts should be repaired.

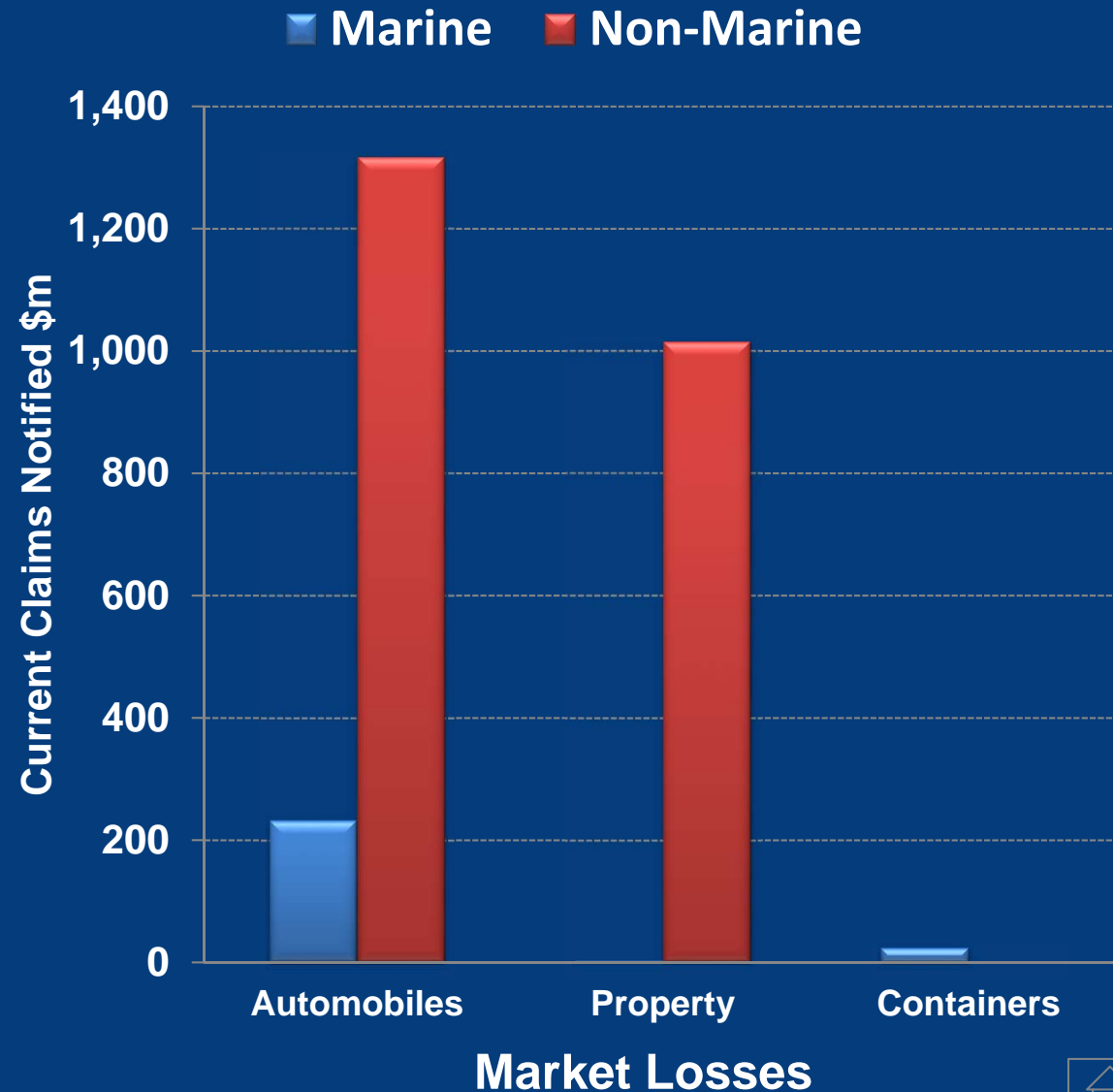


1. Predominantly Property

1. **~13%** reported loss = Marine
2. **44 clients** potential claims from Tianjin
3. **9 client** groups precautionary exposures
4. **4** claims closed

2. **Mixed progress** - Some cases rapidly settled (Japanese insurers). Other cases still awaiting notification

3. Media Misinformation



1. **Intention of U/W** - Port / Port Area/Specific Address and intermediate storage
2. **Local** - Local Policies requires specific addresses
3. **Translation** - "address" is not interchangeable with "premises" in Chinese language
4. **Practical Difficulties** - Identifying locations using Geocoding



1. **Inspections** – Initial delays

- Access to Site and imposition of the exclusion zone for 2 weeks
- Use of Drones both pre and post event
- Time consuming survey of individual cars

2. **Documents** -Slow process

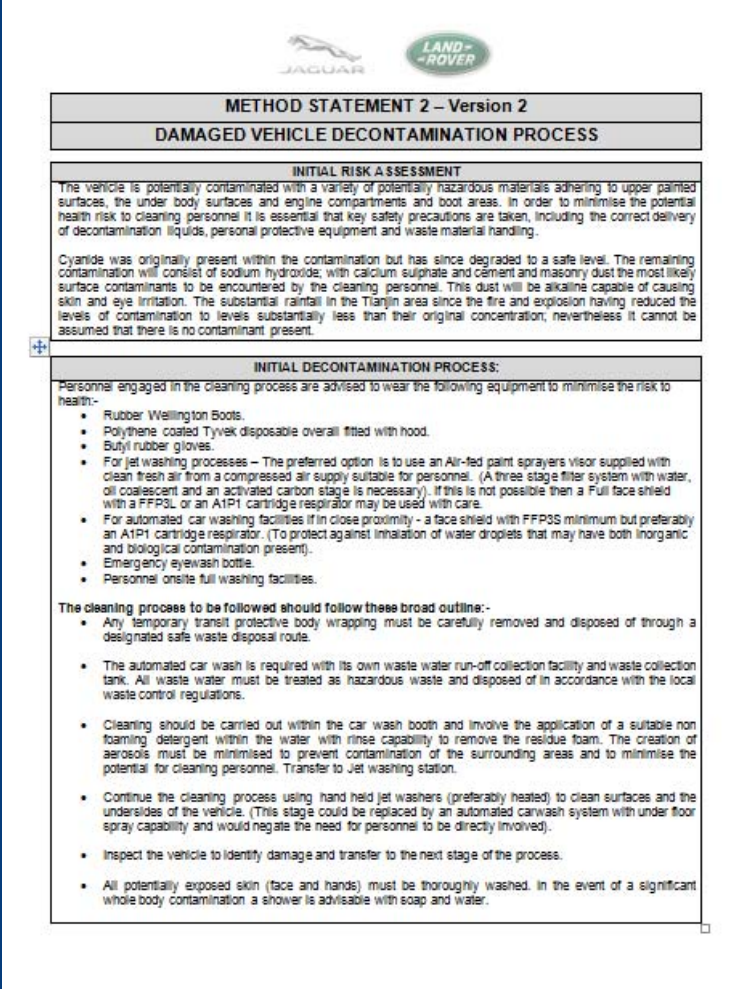
- Sales contract signed between International Brand / China Entity and CATC.
- Bill of Lading of the vehicles
- Commercial Invoice for the import
- Documentation for customs clearance, duty, CAT and sales Tax if applicable
- Purchase order signed with the local dealer (if any)
- Service agreement with CATC.
- Adjustment by 'forensic accounting'



1. **Reputation** - Protects corporate reputation resulting from the sale and distribution of salvaged goods, wide discretion and broad interpretation leading to most written off
2. **Depreciation for resale** - 0-35% depreciation. Some policies max limit 20%. Who wants to buy when market saturated? Difficult to measure when lack of resales
3. **Written off** – Scrap versus salvage
4. **No standard wording:**
 1. *Insurer is the **sole** judge whether goods are resold*
 2. *Insured **and** insurer decide whether to resell or salvage the goods or*
 3. *Insured is the sole judge whether or not it's **appropriate to place goods into the stream of commerce***
5. **Varying degrees of resale, redistribution or write-off wording:**
 1. *Resale of salvage following removal of brands, trademarks or labels*
 2. *Value to be determined post removal of all labelling for repackaging or*
 3. *Value is pre-determined based upon retail price, with some degree of adjustment for duty and taxes*



1. **Toxicologists** – experts engaged (DEKRA)
2. **Report** - Map + vehicle by vehicle testing
3. **Results** – Most Chemicals destroyed by blast heat, however levels of cyanide were high for over a month after blast. Dust is safe...
4. **Clean-up** - Trailing use of AutoGlym “Fall Out Remover” + cleaning in progress
5. **Repair** - Replacing damaged parts (oxidization spots on handles)
6. **CIQ (regulators)** - Now requesting further cyanide testing on ALL for resale



METHOD STATEMENT 2 – Version 2
DAMAGED VEHICLE DECONTAMINATION PROCESS

INITIAL RISK ASSESSMENT

The vehicle is potentially contaminated with a variety of potentially hazardous materials adhering to upper painted surfaces, the under body surfaces and engine compartments and boot areas. In order to minimise the potential health risk to cleaning personnel it is essential that key safety precautions are taken, including the correct delivery of decontamination liquids, personal protective equipment and waste material handling.

Cyanide was originally present within the contamination but has since degraded to a safe level. The remaining contamination will consist of sodium hydroxide, with calcium sulphate and cement and masonry dust the most likely surface contaminants to be encountered by the cleaning personnel. This dust will be alkaline capable of causing skin and eye irritation. The substantial rainfall in the Tianjin area since the fire and explosion having reduced the levels of contamination to levels substantially less than their original concentration; nevertheless it cannot be assumed that there is no contaminant present.

INITIAL DECONTAMINATION PROCESS:

Personnel engaged in the cleaning process are advised to wear the following equipment to minimise the risk to health:-

- Rubber Wellington Boots.
- Polythene coated Tyvek disposable overall fitted with hood.
- Butyl rubber gloves.
- For jet washing processes – The preferred option is to use an Air-fed paint sprayers visor supplied with clean fresh air from a compressed air supply suitable for personnel. (A three stage filter system with water, oil coalescent and an activated carbon stage is necessary). If this is not possible then a Full face shield with a FFP3L or an A1P1 cartridge respirator may be used with care.
- For automated car washing facilities if in close proximity - a face shield with FFP3S minimum but preferably an A1P1 cartridge respirator. (To protect against inhalation of water droplets that may have both inorganic and biological contamination present).
- Emergency eyewash bottle.
- Personnel onsite full washing facilities.

The cleaning process to be followed should follow these broad outline:-

- Any temporary transit protective body wrapping must be carefully removed and disposed of through a designated safe waste disposal route.
- The automated car wash is required with its own waste water run-off collection facility and waste collection tank. All waste water must be treated as hazardous waste and disposed of in accordance with the local waste control regulations.
- Cleaning should be carried out within the car wash booth and involve the application of a suitable non foaming detergent within the water with rinse capability to remove the residue foam. The creation of aerosols must be minimised to prevent contamination of the surrounding areas and to minimise the potential for cleaning personnel. Transfer to Jet washing station.
- Continue the cleaning process using hand held jet washers (preferably heated) to clean surfaces and the undersides of the vehicle. (This stage could be replaced by an automated carwash system with under floor spray capability and would negate the need for personnel to be directly involved).
- Inspect the vehicle to identify damage and transfer to the next stage of the process.
- All potentially exposed skin (face and hands) must be thoroughly washed. In the event of a significant whole body contamination a shower is advisable with soap and water.

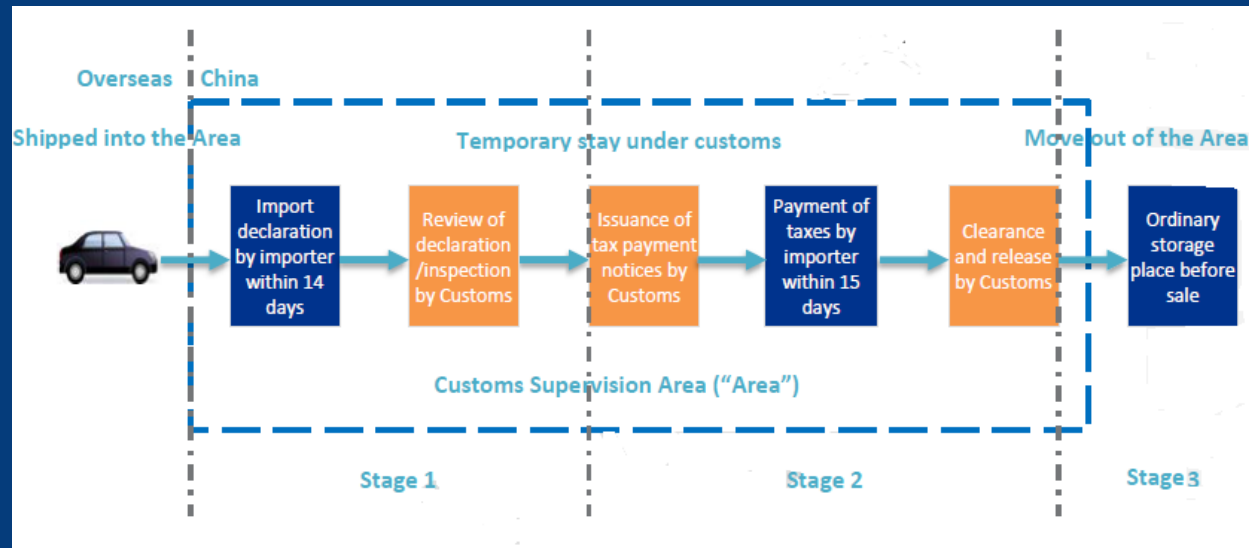


CONTAMINANTS



1. **Volume of vehicles-** Shortage of approved repairers
2. **Cleaning Products – Auto Glym**
3. **Sourcing of parts – All new and original**
4. **Licence for Spraying**
5. **CIQ - China Inspection and Quarantine services**
6. **Certificate**





1. **Pay then reclaim later...BUT HOW?** – Potentially affecting whole market now...
2. **Why?** – If insurance paid in full why would manufacturer try to recover?
3. **3 types:** (1) VAT 17%; (2) Consumption tax up to 40%; (3) Import duty 25% on top of CIF value (wholesale + shipping) all due at 'gating in'. Almost 50% of total automobile claim is tax and duties
4. **Rules** - All *could* be refundable subject to terms....*who will set the precedent?*



1. **Official Government report** - State Administration of Work Safety report 5th February 2016 to *'investigate into the cause and find out who was accountable, in accordance with the law'* for the fire and explosions at Tianjin
2. **Cause** - Attributed to *spontaneous combustion of nitrocellulose* following evaporation of the wetting materials following hot weather, igniting other hazardous chemicals
3. **Violations** - Investigation found serious violations of regulatory, licensing and management discrepancies, abuse of positions and corruption
 - *Ruihai: 10 different violations including illegal operation and bribery*
 - *Local Government Departments: 14 different departments, 32 violations including failure to supervise, negligence and degradation of duty*
 - *Sanctions*: 5 logistic and design companies fined and licences revoked including Ruihai*

* See slide 54

1. An insurer of goods in transit may have subrogated claims in contract against the shipowner or charterer (if the carrier of the goods is on a *'through-transport'* basis)
2. A claim in contract or bailment against the storage yard
3. In tort against the manufacturers of the goods that caused the fire
4. Owners of the goods that started the fire
5. Warehouse where the fire started or the Port Authority themselves

TARGETS - CHARGES & SANCTIONS

Source; Tianjin Port '8.12' particularly serious fire and explosion accident investigation report, 5th February 2016

		Arrested	Removal & Dismissal	Warning, Dismissal & Demotion	De-merit	Admonishment & Education
GOVERNMENT DEPT	Ruihai International Logistics	13				
	Tianjin Port (Group) Company	5	4	9		4
	Transportation Department	7		3	1	3
	Customs System	5		1	4	8
	Work Safety Department	4	3	6		8
	Planning Department	2		6	1	6
	Environmental Protection			2	2	1
	Public Security and Fire				4	2
	Industry and Quality Inspection				3	6
	Marine Department	1			4	6
	Intermediary Agency and Design	11	2	4	3	4
	Local Party Committees			1	2	
	Relevant Ministries of State Council	1			5	
Total (154)		36	9	32	29	48

1. Risk accumulation and exposure convergence
2. Regulatory environment
3. Safe but aggressive growth..?
4. ...and what happens if growth slows down..?
5. Adjustment process

Underwriting Process

1. Original Policies
2. Pre-emptive modelling, research and analysis
3. Understand the emergency, risk management and regulatory environment of key locations

Claims Process

1. Technological Innovations
2. Social Innovations

Thank You



Any questions?

Helen Bradley
MD Marine & Energy Specialty Analytics
+44 20 7357 2155
helen.bradley@guycarp.com

Disclaimer: Guy Carpenter & Company, LLC provides this report for general information only. The information contained herein is based on sources we believe reliable, but we do not guarantee its accuracy, and it should be understood to be general insurance/reinsurance information only. Guy Carpenter & Company, LLC makes no representations or warranties, express or implied. The information is not intended to be taken as advice with respect to any individual situation and cannot be relied upon as such. Please consult your insurance/reinsurance advisors with respect to individual coverage issues. Statements concerning tax, accounting, legal or regulatory matters should be understood to be general observations based solely on our experience as reinsurance brokers and risk consultants, and may not be relied upon as tax, accounting, legal or regulatory advice, which we are not authorized to provide. All such matters should be reviewed with your own qualified advisors in these areas. Readers are cautioned not to place undue reliance on any historical, current or forward-looking statements. Guy Carpenter & Company, LLC undertakes no obligation to update or revise publicly any historical, current or forward-looking statements, whether as a result of new information, research, future events or otherwise. This document or any portion of the information it contains may not be copied or reproduced in any form without the permission of Guy Carpenter & Company, LLC, except that clients of Guy Carpenter & Company, LLC need not obtain such permission when using this report for their internal purposes. The trademarks and service marks contained herein are the property of their respective owners.