Bureau of Pollution Control and Prevention

Increasing Pollution Complaint Response Capacity



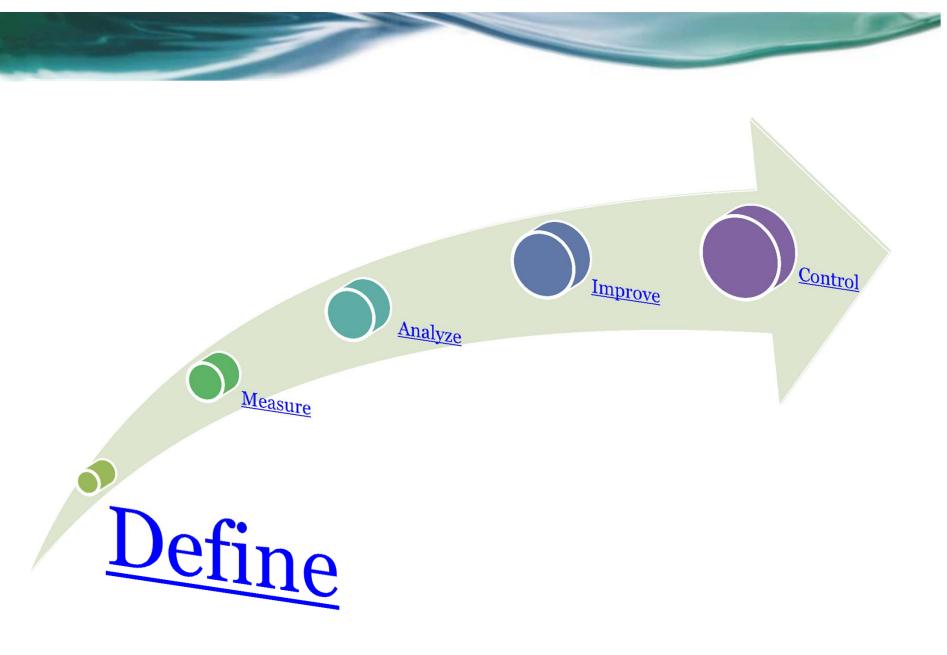
Lean Six Sigma Green Belt Project
12/18/2013



Increasing Pollution Complaint Response Capacity through DMAIC Tool

- **Define**
- **■**Measure
- ☐ <u>Analyze</u>
- □<u>Improve</u>
- □ Control







Define: Bureau Overview

- Bureau of Pollution Control and Prevention (BPCP)
 - Mission: Protect public health by improving the quality of ambient air, surface water, and land in Houston
 - <u>Issue Areas</u>: Air and water quality, landfills, industrial and municipal wastewater treatment plants, illegal dumping, illicit discharges and storage of solid/hazardous waste
 - <u>Programs/Workloads</u>: Complaint response, area surveillance, investigations, complaint enforcement and follow up, environmental monitoring, permitting and rule-making comments, state mandated hazardous site audits, and community outreach



Define: Problems and Mission Statement

- Problems:
 - Staff reductions: (due to attrition and budget cuts)
 - Previously: Bureau of Air Quality Control 40 employees for air issues
 - After 7/2010: BPCP 37 employees for air, water, and land issues
 - Additional responsibilities: August 2013, Texas First District Court of
 Appeal reverses trial court judgment regarding Air Pollution Abatement
 Program that was ruling in favor of Business Coalition for Clean Air
- Result: lacking the capacity to fulfill all obligations
- Goal: Increase pollution complaint response capacity by eliminating waste, thus also improving quality and quantity of output by BPCP



<u>Define</u>

Measure



Measure: Observations

- Transportation/Motion:
 - Driving time (more than 45 minutes between locations;
 Average of about 30 minutes)
 - Multiple trips back to the office
- Inventory:
 - Investigators print out multiple copies of electronically accessible reports
 - Administrative Assistants spending large parts of their day either printing forms or filing copies of permits and reports
- Waiting Time:
 - Needs additional GRIMM dust detector



Measure: Observations

- Over Processing: unfriendly Lagan system
 - Wrong due dates
 - Investigators manually entering data in "other comments" section
 - Only one type of complaint available
 - Have to return to office for anything involving Lagan
 - Manually search for Notice of Violations (NOVs), Citations

• Defect:

- No standard reporting format
- No standard procedure for complaint response
- Variance in investigation protocol and experience
- Some investigators miss what others catch
- Information just kept at investigator's desk



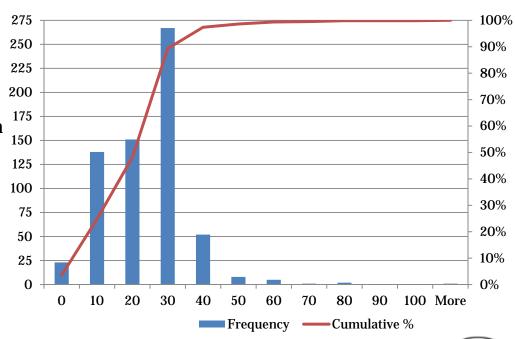
Measure: Data

- Water complaints:10% of total complaints; Soil: 3-5% (not in Lagan)
- 643 air complaints/FY13
 - Average time to close: 19 days
 - **o** Value Add Time: 1 3.5 hours
 - **o** Takt Time: 3.2 Hours/Complaint

2.5 complaints/day

55 complaints/month

Days to Close

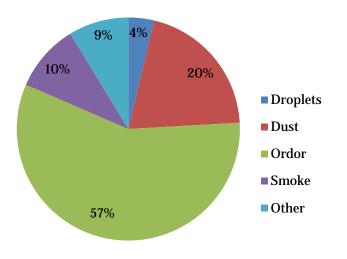




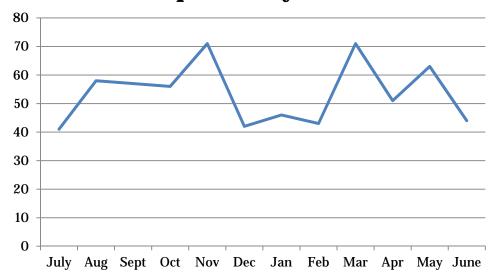
Measure: Data

- 44 out of 643 afterhours air complaints
- 45 complaints on the weekend
- Most complaints require around 2 follow ups
 - Checking permits, ensuring compliance, or later surveillance

Complaints by Type

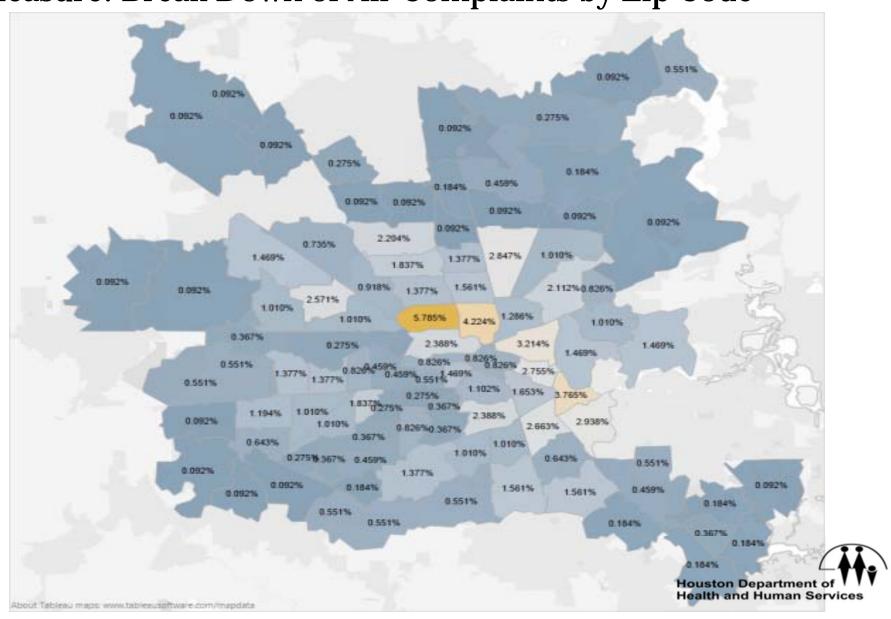


Complaints by Month





Measure: Break Down of Air Complaints by Zip Code





Houston Department of Health and Human Services

Analyze: Cost of Driving

FY13		
Cost per Mile	0.277964514	dollars (Fuel + Maintenance)
Total Mileage	76303.4	miles
Pure Driving Cost	\$ 21,209.64	

^{*} Using fleet management cost



Analyze

Month	# Case Received	# Cases Closed
July	41	53
Aug	58	41
Sept	57	60
Oct	56	66
Nov	71	65
Dec	42	61
Jan	46	28
Feb	43	37
Mar	71	60
Apr	51	65
May	63	64
June	44	48



Analyze: The 5 Why's

Problem: EI gave a NOV instead of a citation to violator (Why? 1) EI was at the field and did not have access to company file

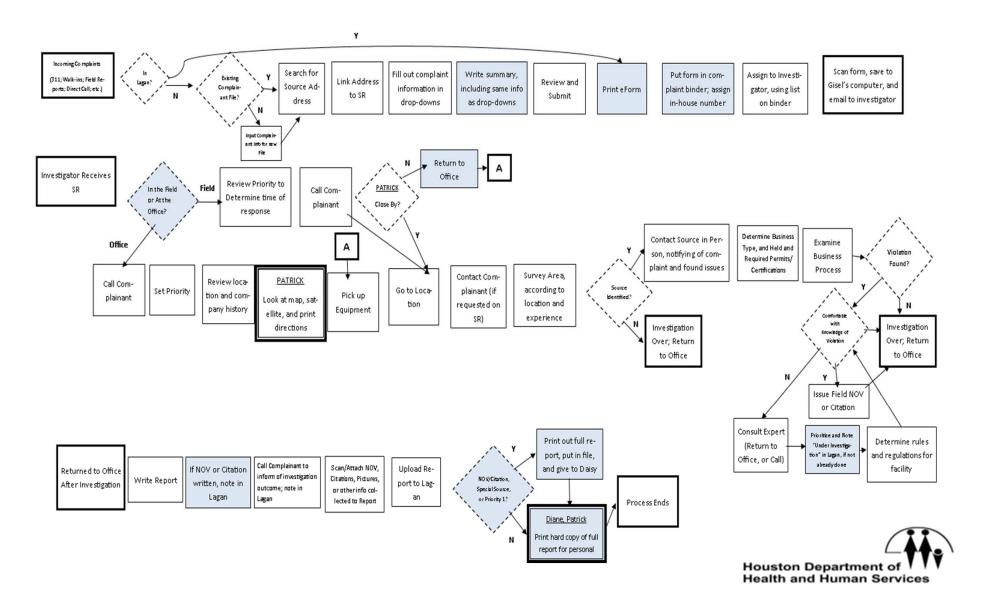
(Why? 2) Admin was not available at the time to pull company file for EI from the file room

(Why? 4) EI and admin cannot look at company's NOVs history on Lagan

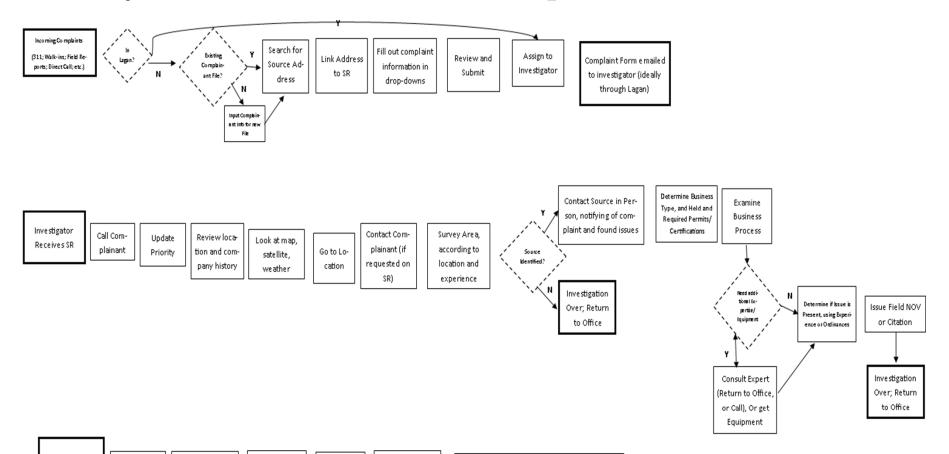
(Why? 5) Lagan does not allow you to query NOVs by company



Analyze: Current State (~50 steps)



Analyze: Future State (~39 steps)



Returned to Office After Investigation

Write Report

Call Complainant to inform of investigation outcome; note in Lagan Scan/Attach NOV, Citations, Pictures, or other info collected to Report Upload Report to Lagan Notify Daisy if NOV or Special Situation Process Ends

Customer Demands

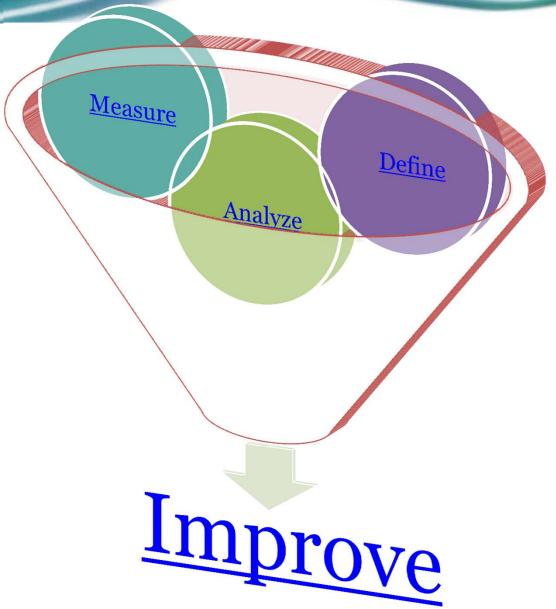
-Alleviate Problem

-Easily Accessible Violation Status

-Investigation Summary

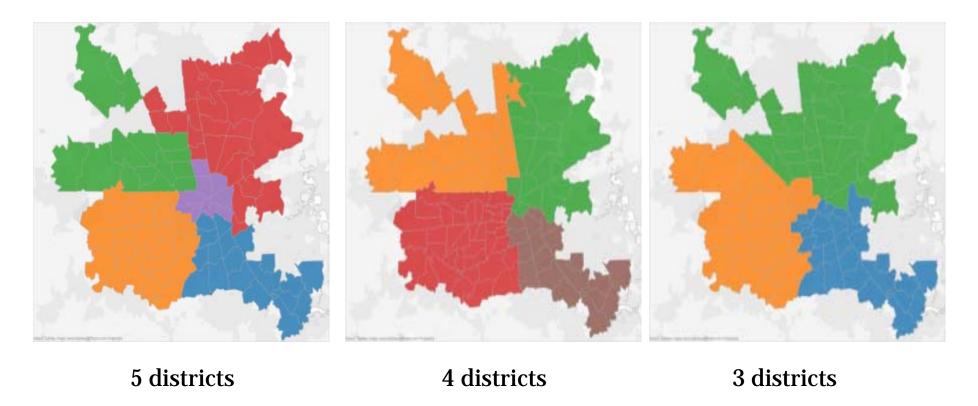
-Standard Forms







Improve: District Map



- SE: Body Shop, Refinery, Metal Recycle. NE, SW, NW: Combination
- Furthest two points are now about 40 minutes apart within a district, with the smallest district having a maximum of 15 minutes between points.



Improve: District System

FY13 (w/o		
district system)	Cases	Percentage
Daisy James	1	0.2%
Darryl Tate	138	21.5%
Diane Williams	85	13.2%
Elmer Neal	96	14.9%
JoAnn Huffman	107	16.6%
JoAnn Moore	1	0.2%
Nguyen Ly	116	18.0%
Patrick Lee	65	10.1%
Sonja Lewis	5	0.8%
Unknown	29	4.5%
Grand Total	643	100.0%

FY13 (with district system)	Count of Date Received	Percentage
District Brown	161	
District Green	157	
District Orange	153	
District Red	163	
#N/A	9	
Grand Total	643	

Monthly Distribution

FY 13 (with district system)	July-Aug	%	Sept-Oct	%	Nov-Dec	%	Jan-Feb	%	Mar-Apr	%	May-June	%	Total	%
District Brown	20	20%	24	21%	28	25%	22	25%	39	32%	28	26%	161	25%
District Green	27	27%	32	28%	25	22%	22	25%	30	25%	21	20%	157	24%
District Orange	24	24%	32	28%	31	27%	19	21%	20	16%	27	25%	153	24%
District Red	28	28%	23	20%	28	25%	25	28%	29	24%	30	28%	163	25%
#N/A	0	0%	2	2%	1	1%	1	1%	4	3%	1	1%	9	1%
Grand Total	99	100%	113	100%	113	100%	89	100%	122	100%	107	100%	643	100%
Differences (highest vs.														
lowest)	8	8%	9	8%	6	5 %	6	7%	19	16%	9	8%	9.5	1%

Improve: Standard Investigation Report Form





Improve: Standard Ordering Form

Contact Person John Doe

HOUSTON DEPARTMENT OF HEALTH AND HUMAN SERVICES FOUNDATION, INC.

Bureau of Pollution Control and Prevention

7411 Park Place Blvd. Houston, Texas 77087 (832) 393-5730

Order Form

 Date
 7/31/20013
 Name
 Gisel Chavez

 HDHHS Division
 BPCP

 Phone Number
 832-393-5730

Vendor Information Company Name Bob Shirt Company Address 1234 Main Street Houston, TX 77456 Phone Number 713-123-4567

Quantity Estimated Unit Description of Items Total Price Item# Requested Price Polo White Small) \$85.52 M140 \$21.38 5 Polo White (Large) \$21.38 \$106.90 M140 JN30 1 Jacket (Small) \$43.29 \$43.29 92 \$4.40 \$404.80 Logo \$0.00 \$0.00 TOTAL \$640.51



Improve: Investigation Report Standard of Work

Investigator: Lagan	SR Case		Arrest
Auditor: Date:			
		-	-
DOES REPORT DOCUMENT?	Yes	No	N/A
Complainant's contact prior to investigation?			
2. Accurate and justified prioritization?			
3. Complainant's concerns?			
4. Information relative to impact and seriousness?	- 1 -	_	$\overline{}$
5. Time and Date of Investigation?			
6. Weather Conditions, wind direction, wind speed, humidity?		$\overline{}$	
7. Location and discussion of area survey observations?	10		$\overline{}$
8. Contact with complainant, relative or neighbor at the site?			$\overline{}$
9. The confirmation or absence of pollutant during the investigation?			
10. Pollutant was traced from origination point to complainant's location?	15		ŏ
11. Use of screening instrument and observation of screening data if above ESLs?		$\overline{}$	$\overline{}$
12. Comparison of data to ESLs?			$\overline{}$
13. Reason complaint is confirmed or unconfirmed?		ā	$\overline{}$
14. How pollutant affected public health, property or environment?		-	$\overline{}$
15. Reason that pollutant is objectionable or offensive?	15		~
16. Determination of applicability of ordinances, state and federal regulations?	10	<u> </u>	$\overline{}$
17. Authorizations or ordinances, state and federal regulations violated?	15		H
18. NOV or Citation issued?			
19. Complainant was contacted with the results of the investigation?		ō	
20. Investigation conclusion and resolutions?	- - - - - - - - - - 		<u> </u>
21. Photographs, opacity, screening instrument data or sample analysis taken?	10	<u></u>	
22. Compliance history within report?	- 		$\overline{}$
23. Was referral to appropriate agency indicated in report? If not, was reason provided?		$\overline{}$	
24. If follow-up needed, was it indicated in report? If not, was reason provided?			
dditional Comments:			
LAGAN Checklist	Yes	No	N/A
25. Was complaint contacted within 24 hours?	10		
26. Was case taken within five days?	10		ŏ
27. Complaint prioritized appropriately?	10	-	-
28. Due dates updated appropriately for each task?	10	-	
29. Was e-Form updated thoroughly and accurately?	 -		\overline{H}
30. Was event note added for NOV or Citation?	 -		\exists
31. Was event notes added for Source Registration verification?	10		$\overline{}$
32. Closure within 30 days?	15	ŏ	\overline{H}
33. Closure within 45 days?	 - - - - - - - - - 	–	
Additional Comments:			



Improve: Field Investigation Standard of Work

Bureau of Pollution Control and Prevention Field Investigation Standard of Work

Lagan	SR C	150		Date:
		Tripon.		
Invest	igation	Туре:	Odor [Fish Kill	
Yes	No	N/A	1.	Did the investigator contact the complainant for specific details?
			2.	Did the investigator discuss and document alleged solverse effects on the complainant's health, property, animals or vegetation or impact to public health?
			3.	Did the investigator prepare for safety concerns?
			4.	Did request guidance from Sr. Project Manager?
			5.	Did the investigator appropriately determine and document complaint priority?
			6.	Did the investigator document dates, times, frequency and duration that the complainant(s) experienced the problem?
			7.	Did the investigator verify complaint history via LAGAN or BPCP files?
			8.	Did the investigator survey upwind, downwind, and at the location of the problem to identify and eliminate other potential area sources?
			9.	If pollution is not origoing and complaint is reported after the event, did the investigator check the wind direction and speed at the time of the complaint to establish possible sources?
			10.	Did investigator consider the location and distance of the complainant from source since, if winds are low, proximity is more important than wind direction?
			11.	Did the investigator identify himself to the complainant and explain the purpose of the visit?
			12.	While at the complainant's home, were attempts made to detect the pollutant or locate a source using applicable tools?
			13.	If recurring complaint, while at the complainant's home did investigator discuss or suggest use of citizen's evidence, affidavits, odor logs, etc.?
			14.	Did investigator contact the alleged source, or if identified, contact a source, responsible party or regulated entity (RE) and explain the purpose of the visit?
	۱ ۵		15.	Did investigator use applicable safety equipment?
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ised 8/29	V2013			

Bureau of Pollution Control and Prevention Field Investigation Standard of Work

	res	no		16.	Did the investigator discuss alleged or observed unauthorized emissions or discharges and probable cause, i.e., lack of controls, plant or equipment
	. 0			17.	malfunction, power outage or housekeeping problems, with the RE? Did the investigator verify applicable authorizations, i.e., TCEQ Permit, PBR, DeMinimus, Source Registration?
				18.	Did the investigator verify and document RE's report of emissions event, spill, maintenance, startup/shut down notification?
				19.	Did the investigator request and collect documentation to support the sources' compliance status? If so, note the type of data, instrument logs, journal entries or receipts requested?
				20.	Did the investigator use guidance from Sr. Project Manager?
				21.	Did the investigator have and use applicable sampling tools and equipment to trace the pollutant from the complainant to the source?
				22.	Did the investigator issue an NOV/citation or refer the issue? If so, note who it was referred to.
				23.	Did the investigator inform the RE of violations and explain what was needed to be in compliance?
				24.	Did investigator provide technical assistance, without advising or consulting
				25.	Did investigator process samples within one business day of collection?
				26.	Were the correct sampling tools used?
				27.	Were samples appropriately collected, preserved and taken to lab timely?
				28.	Is follow-up planned?
				29.	Did the investigator identify the problem, reduce pollution and resolve the complaint?
				30.	Did investigator provide complainant with results of investigation?
				31.	Was the investigator professional and courteous?
				32.	If applicable, did investigator prepare summary for supervisor, Mayor's office, etc., within two days of the investigation?
				33.	Did investigator complete investigation within the prioritization time frame?
	Total !	Numb Numb	er of er of	"No" "Yes" or"]	N/A" X 3 Points =
	Qualit	y Rev	iew I	ield Audit	Score: out of possible 99
Page	2 of 2				

Houston Department of The Health and Human Services

Improve: Surveillance Log (Before)

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		July	August	September	October	November	December	January	February	March	April
SOURCE NAME	SOURCE ADDRESS	July	August	September	Octobei	November	December	January	ebluary	Iviaicii	Дрііі
Almeda Sims	1239 1/2 Almeda Road 77045	2PL	2PL	2PL	2PL	2PL	2PL.2DT		2DT	1DT	
Big K Environmental	423 E Little York 77076	1JH	1JH	DT-1JH/RH*train		1DT	1JH	1JH	1JH	1JH / 1NL	1 NL/1JH
Bodner Iron and Metal	3660 Schalker Dr. 77026	IJI	IJI	וומוו		101	3DW	3DW	2DW	3-DW	3-DW
Coastal Crushed Concrete	3603 Cherry St. 77026						3DW	3DW	2DW	3-DW	3-DW
		ODT	45	I T1JH-DW&RH*t	1DT	1JH-1DT	3DW 3DT		2DW 2DT	3-DW	3-DW 4DT
CES Environmental	4904 Griggs 77021	3DT				1JH-1D1		1DT			
	#1 Wharf Rd 77012	2DT		1JH-DW&RH*t			2DT	1JH	2DT	1 NL	1DT/1 NL
Clinton Road (Dust Plan)	9100 - 9800 Blk Clinton	1NL	1NL	1NL	1NL	1NL	1NL,2DT	1NL	1NL	2 NL	1 NL
Cook Composites and Polymers	2434 Holmes Rd 77051	1DT		1DT-1JH& Rhtrain	1DT	2DT	3DW	3DW.1DT	2DW	1DT/3-DW	3-DW
CMC Recycling	2015 Quitman St									1NL/4-DW/JH	3-DW
Darling International	3701 Schalker 77026	1JH	1NL	1JH			3DW	3DW	2DW	3-DW	3-DW
Dee Foundries	2408 Everett 77009	2PL	2PL	2PL-1JH&Rhrain.	2PL	2PL	2PL	1JH	1PL	1 NL	1 NL
Downstream Environmental	3737 Walnut Bend 77042	1JH/1DT	1JH		1JH	1DT-1JH	1JH,1DT	1JH	1JH		1JH
	Multiple Locations	0	0	0	0	4	10	11	8	19	22
Gas/Haps Reduction Inititive MS4	Multiple Locations	0	0	0	0	4	10	11	8	19	22
Goodyear Tire & Rubber	2000 Goodyear 77017	1NL	1NL	T/ 1JH&NL&Rhtra	2NL &JH	1NL-1DT	1NL-2DT	1NL &DW	1DT,1NL	2 NL	1DT/2 NL
Holmes Road Area	Multiple Locations	1DT		2DT	1DT	2DT	3DW-2DT	3DW,1DT	1DT,2DW	1DT/3DW	1DT/3-DW
Holmes Road Recycling (Metal											
Recycler)	2820 Holmes Rd 77051	1DT	1	2DT	1DT	2DT	3DW-2DT	3DW,1DT	1DT2DW	1DT/3DW	1DT/3-DW
Houston Refining	12000 Lawndale 77012		1JH				2DT		1DT		ĺ
Katz Coffee	1003 W 34th St 77018	1JH	1JH	1JH	1JH	1JH-1DT					
Kirsch Landscaping	2625 Mills Branch 77345	1JH	1JH	1JH		1JH					
Lift Station West Hedrick	1707 W Hedrick 77011	2PL	2PL	2PL	2PL	2PL-1DT	1DT	1DT	1DT	1DT	1DT
Limeco Inc.	4221 Schumier 77048	1DT		1JH							
Mauser	4004 Homestead 77028	1EN	1NL	2EN	2EN	1NL(comp)	1EN	1EN	1DT,1EN	1DT,1EN	1DT/1EN
Memorial Cremoatorium & Mortuary	5525 Pine 77081	1EN	IIVE	1EN	1EN	mac(comp)	1 NL (Comp)		IDI, ILI		1DT/1EN (Com
Miller Funeral & Cremation Services	7723 Beechnut 77074	2PL/1EN	2PL	2PL/1EN	2PL	2PL	2PL	-			I
NuStar	7220 JW Peavey 77011	2DT	1JH/trainees	2JH/DW	1JH	1DT	1DT	1DT	1DT		1DT/1JH
Oil Patch & Sand Blast	5308 Oates Rd 77013	2DT	1JH	1JH	1311	1JH	101	101	101		101/1311
Petrologistics	9822 LaPorte 77017	1NL	1NL	2DT	2NL&JH	1NL-1DT	1NL.2DT	INL & DV	1DT.1NL	1DT.2 NL	2 NL
		1DT	1JH	201	1JH/1DW	INL-IDI	2DT	1DT	IDI, INL	ID1,2 NL	2 NL 1DT
Rhodia	8615 Manchester 77015	2NL	2NL						45.11		
	Multiple Loactions			1NL	3 JF	3 JF	2NL	1NL	1NL	1 NL	2 NL
Rose Metals (Metal Recycler)	2902 Center 77007	1JH	1JH		1JH	1JH					1JH
Sims South	3100 Galveston Rd 77017	2PL	2PL	2PL	2PL/KC	2PL	2PL,2DT	1DT	1PL	1DT	
SouthWaste (GTM)	6407 Hurst 77008	2PL	2PL- 1JH	2PL	2PL	2PL-1DT-1EN	2PL		1DT,1PL	1JH / 1NL	1 NL/1JH
Southwest WWTP	4211 Beechnut 77096	1 JH; 2PL	2PL	2PL	2PL	2PL	2PL		1PL		
Titun Gunite	1727 De Soto 77091	1JH	1JH	1JH							
TX Petrochemical (TPC)	8600 Park Place Blvd. 77012	1NL	1NL	2DT	2 NL & JH	1 NL-1DT	1NL,2DT	1NL &DW	1DT,1NL	2 NL	2DT/2NL
TX Port Recyling (TPR) Metal Recycler	8945 Manchester 77012	1DT	1JH	2DT	1JH/1DW	1DT			1DT	1DT	2DT
United Site Services	421 E Little York 77076	1JH	1JH	1JH		1DT	1JH	1JH	1JH	1JH / 1NL	1 NL/1JH
	13525 W Houston										
Upper Brays WWTP	Center77082	2PL	2PL	2PL	2PL	2PL	2PL,1DT	1DT	1DT,1PL	1DT	
Wallisville/Oates Road Area (Dust											
Redution Plan)	Multiple Locations	1NL/2DT	2NL	1DT/1NL	1NL	1NL	1NL	1NL	2NL	1 NL	1NL
Ruffino Waste Transfer Station OFF LIST	9730 Ruffino Rd	1JH/1DT					1DT				
Eadon & Son Dirt Yard-OFF LIST	7075 Homestead	2JH									
RCH Inc-OFF LIST	5100 Fisher Rd	2JH	3JH	1JH	1JH	1JH		1JH	1DT		
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TOTALS											

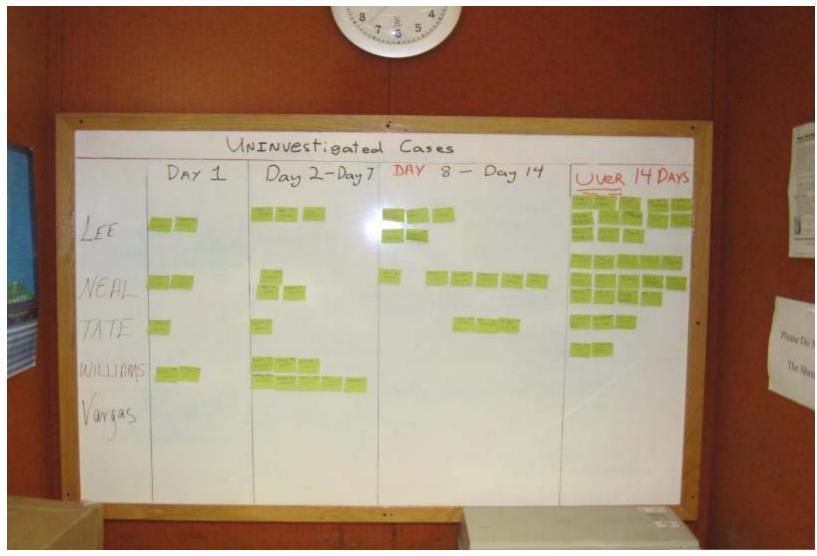
Houston Department of V Health and Human Services

Improve: Surveillance Log (After)

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SOURCE ANDRESS N. N. D. OT FN DOW N. N. D. D. FN DW N. D. D. FN DW N. N. D. D. FN DW N. N. D. D. FN DW N. D.					Jul-	-13				-	Aug-	-13		П			Sep-	13				Oc	t-13				Nov	<i>-</i> 13					D€	∍c-1:	3				Ja	ar
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Interest British Tribute Tribu	SOURCE NAME		NL	JV	PL	DT I	EN C	1 WC	VL .	JV F	L C)T E	N D	W	NL .	JV	PL C	T E	N D	WN	L JV	' PL	DT	EN	DWN	∟ J∨	PL	DT	EN [OW	NL	JV	PL	DT	. EV	1 DA	V NL	. JV	PL	4
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Secretary Secr	Coastal Crushed	5555 Container 21111526			-	-	-	3	-+	\dashv	\dashv	+	+	3	-	_	-	+	_		+	+				_		\pm	-				+	+	+	+	+	+	+	4
FFF/Derrichsourg (Metal Exception FFF/Derrichsourg (Metal Exce	Concrete	3603 Cherry St. 77026						3						3																										
Recycling	CES Environmental	4904 Griggs 77021				1												2																		1				
Common Road Duas Plan 9700 - 9800 Bit Clinton 1	CFF/Derichebourg (Metal																																							
2004 Composition and protein	Recycler)	#1 Wharf Rd 77012				_			_	_	_	1	_		_			1															₩	4		4				4
2004 Composition and protein	Clinton Poad (Dust Plan)	9100 - 9800 Blk Clinton	1						2																															
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Parting International John Services 2008 Event 177009 2 3 2 3 1 1 1 3 3 5 5 5 5 5 5 5 5	Polymers	2434 Holmes Rd 77051						3				1								1					2															4
Dee Foundries 2400 Everett 77009 2 2 2 3 3 1 1 2 2 3 3 3 3 3 3 3 3	CMC Recycling	2015 Quitman St						3						3																						1				1
Downstream 200 Part Downstream Dow	Darling International	3701 Schalker 77026						3						3			1					1					3													1
Sary Flags Reduction Sary Flag	Dee Foundries	2408 Everett 77009			2						2						1					1											1			1				1
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Health and Human Services

Improve: Visual Control



Houston Department of Health and Human Services

Improve: Lagan System

- Changes to Lagan system
 - Fixed the issues of current tasks not having correct due dates
 - Integrated water and soil complaints into Lagan
 - Create Enforcement Action section
 - Add Source Registration section
 - Request 311 staff to survey complaint caller about "how did you know to call 311 for your environmental concerns?"
 - Add Community Outreach section
 - Add Idling to the options for "What type of pollution is present"
 - Add generic service request for Follow up case



Improve: Others

 Reduced filling/inventory of Texas Commission on Environmental Quality (TCEQ) permits by eliminating unnecessary water permit

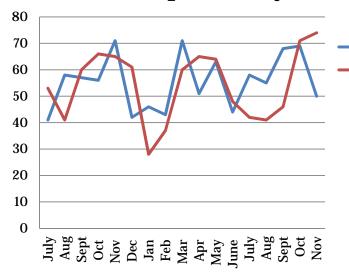
> # Case Received # Cases Closed

> > Start in mid Sept→

storage

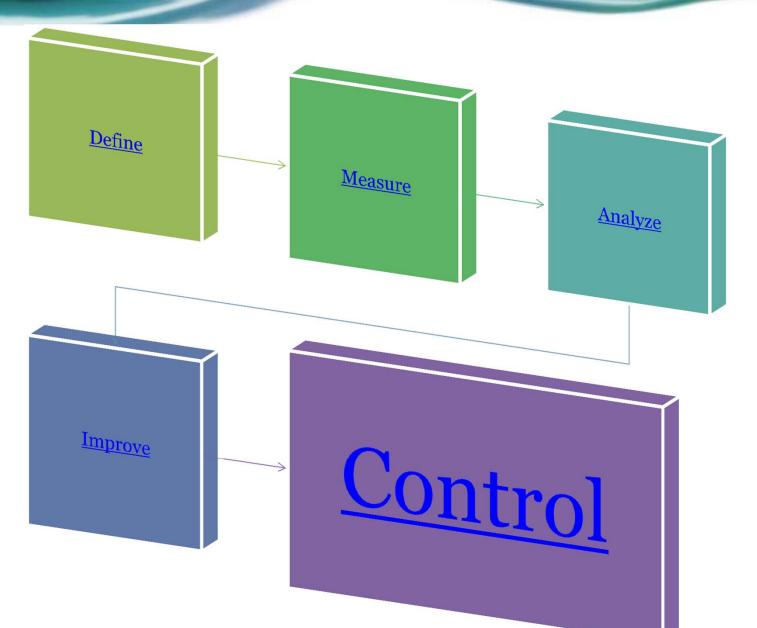
- Streamline administrative procedures
- Eliminated wasteful paperwork

Complaints by Month



Month	# Case	# Cases
	Received	Closed
July	41	53
Aug	58	41
Sept	57	60
Oct	56	66
Nov	71	65
Dec	42	61
Jan	46	28
Feb	43	37
Mar	71	60
Apr	51	65
May	63	64
June	44	48
July	58	42
Aug	55	41
Sept	68	46
Oct	69	71
Nov	50	74





Houston Department of Health and Human Services

Control

- Next Steps/Pending
 - Additional Funding for GRIMM Dust Detector Equipment
 - Mobile Equipment for Environmental Investigators
- Tracking Outputs to Measure Success
 - Review complaint cases each month
 - Adjust districts if workload unbalanced
- Follow Up on Process
 - Maintain contact between interested parties
 - Weekly communication
 - Biweekly meetings
 - Continued observations



Q & A



