

*EnviroServ Waste
Management (Pty Ltd)*

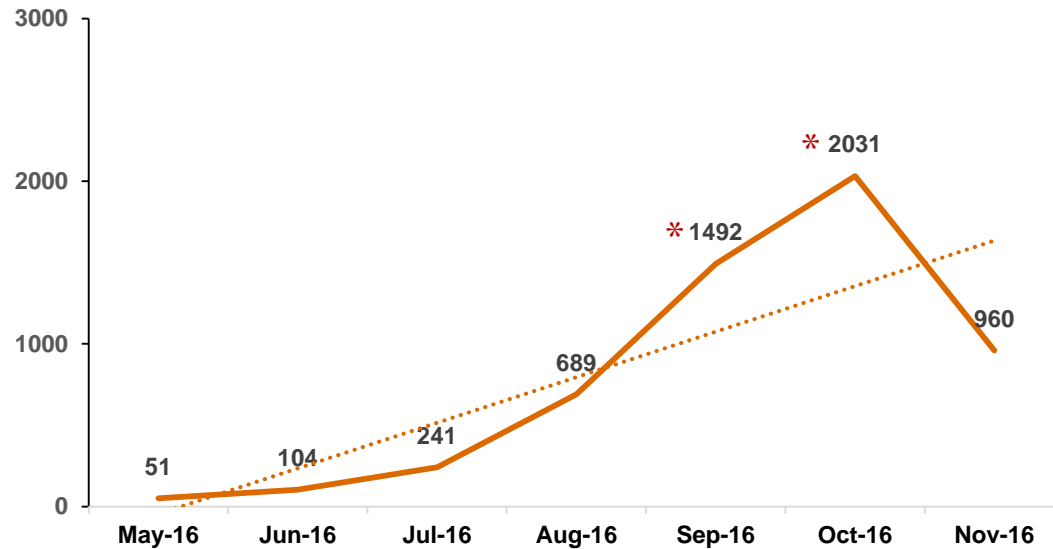
Complaints Analysis
November 2016

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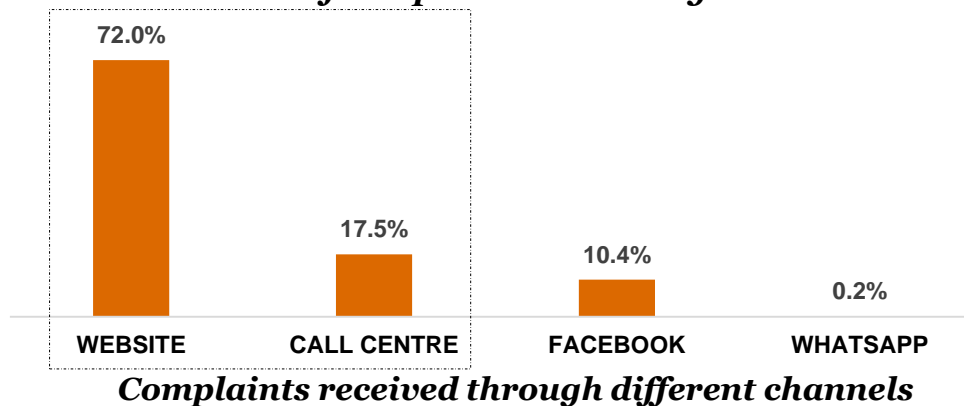
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Background

In recent months it was observed that the number of complaints received against the landfill site in Shongweni have significantly increased. Analysis was done on the complaints lodged by the residents from the surrounding areas to find possible trends from the data.



Trend of complaints since May 2016



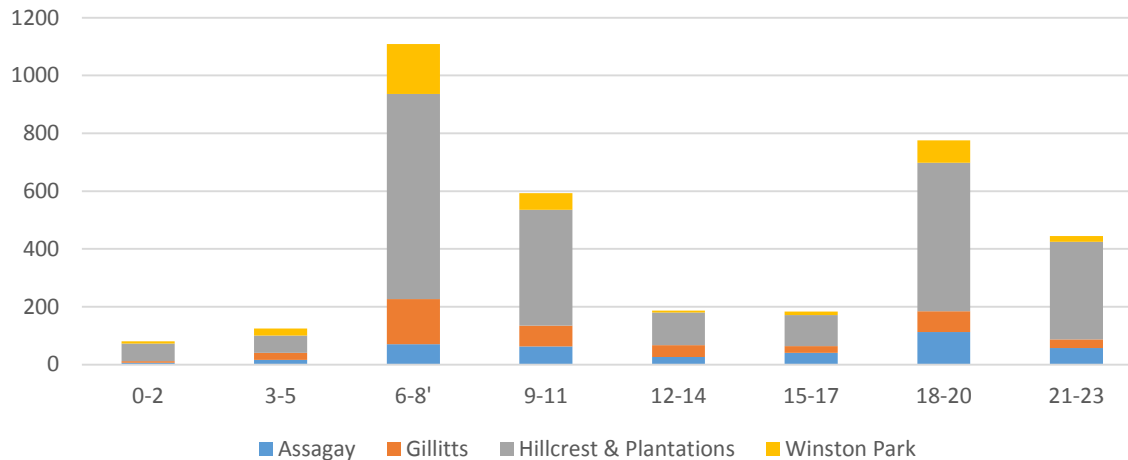
Key observations

- A significant increase in number of complaints was observed from May 2016 to October 2016.
- **89.5%** of these complaints were received through the official means of communication (Call Centre, Website) and other **10.5%** were received through unofficial channels (Facebook, WhatsApp)
- Surrounding areas such as Hillcrest, Assagay, Gillitts, Winston Park and Upper Highway contributed to **~93%** of the total complaints received since May 2016.
- Summerveld, Shongweni, Kloof, Waterfall Bothas Hill and Waterfall areas contributed to the next **6%** of the total complaints.
- * **~15%** (574 cases) of the complaints appear to be logged twice at the same time by complainants. The complaints have unique case numbers but the complaint time, name, surname, suburb, type and outcome expected are the same.

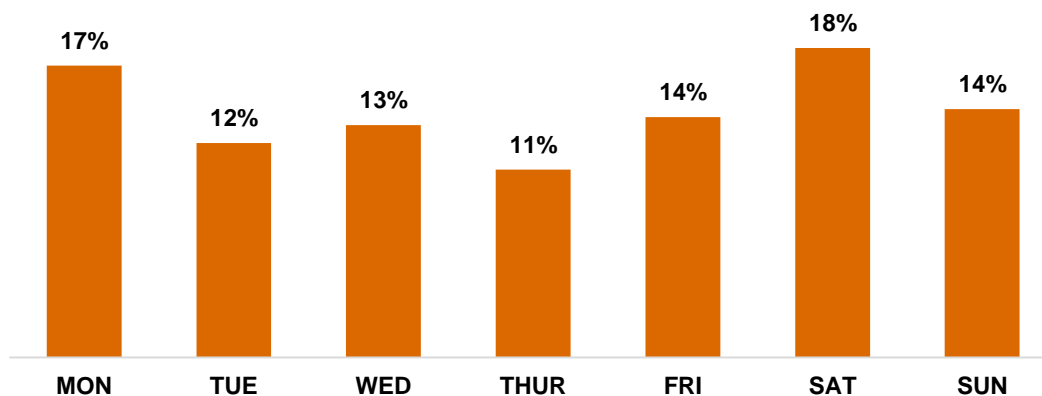
** Possible inflation in the number of complaints due to same complaint being received / recorded twice (~15%)*

Time Analysis

Analysis on the complaints data was done to understand the pattern of complaints during different intervals in day and over days of the week.



Web complaints distribution across the day.



Distribution of complaints received throughout the week since May 2016

Key observations

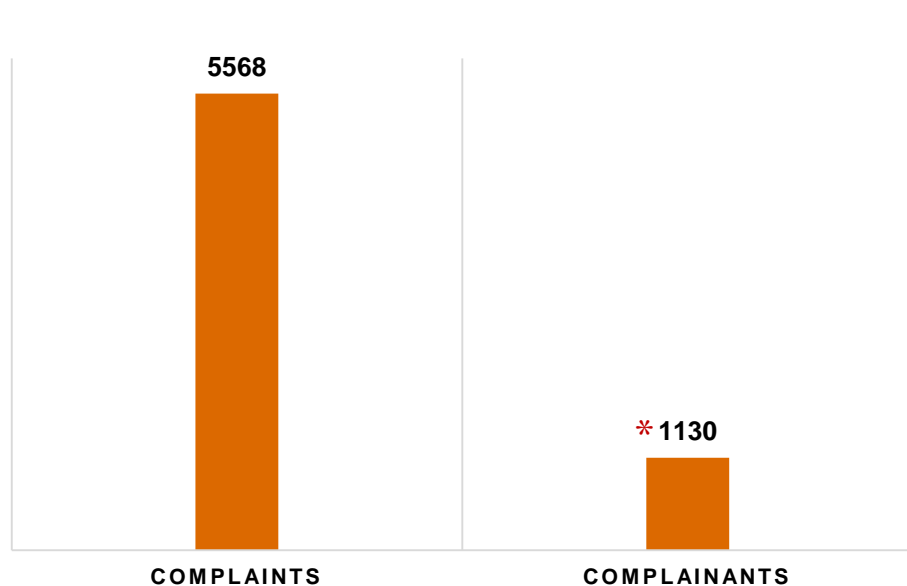
- It was observed that maximum number of complaints (~**32%**) were reported between 0600-0859 followed by 22% reported between 1800-2059.
- Most of the areas from where complaints are reported demonstrate similar trends on time of complaints.
- Most complaints are reported on Saturday (18%) followed by Monday (17%).
- An analysis of the distribution of the complaints throughout the week is fairly linear and does not indicate any significant spikes on certain days of the week.

Uniqueness of the Complaints

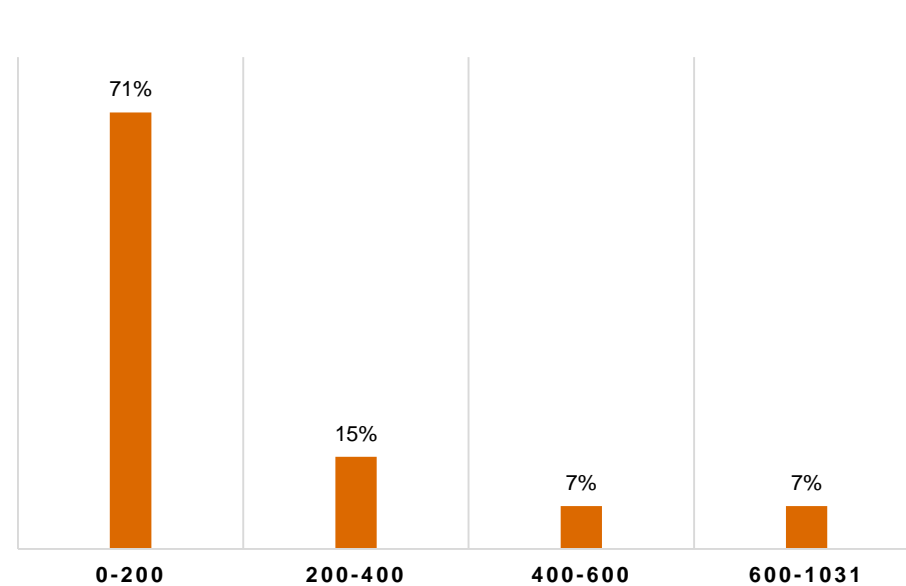
Data uniqueness checks were done on the complaints lodged by the local residents to determine the number of unique residents who are affected.

Complaints received through Website and Call Centre contributed to 89.5% of the total complaints since May 2016.

Based on our analysis, ~1030 unique complainants were found.



Uniqueness of the residents were analysed based on a combination of contact number, email ids and complainants location from the complaints data.



Analysis shows that ~70% of the complaints were received from the top 200 complainants

** Unique number of complainants may be inflated due to possible typographical errors present in the complaints data.*

Location Analysis

Location of the complaints were analyzed to find possible causes of odour in the surrounding areas.

Majority of the complaints in the area are concentrated around the Transnet pipeline and pump station. Other possible source could be the industrial complex situated next to the N3 highway.



Map of the surrounding areas

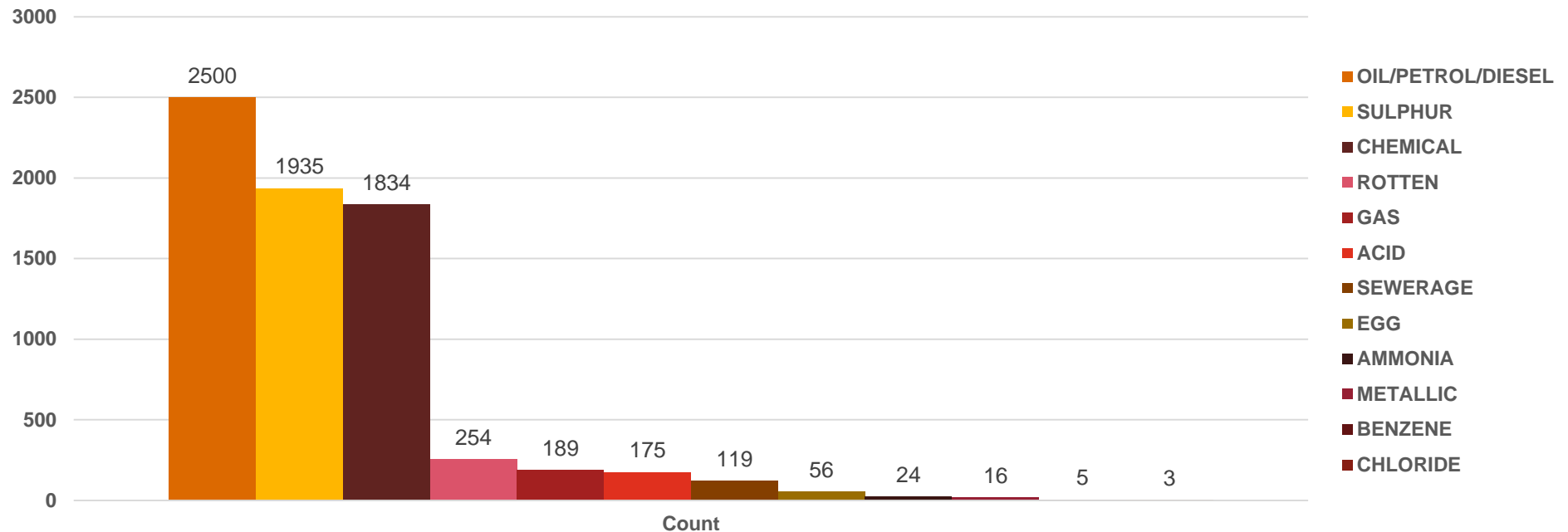
Key observations

- More than 93% of the complaints pertain to the following areas – Hillcrest, Assagay, Gillitts, Winston Park and Upper Highway.
- A geo-special analysis of the area indicates other possible sources of odour around key complainant areas. There is a Transnet pipeline, pump station and spill sites in the vicinity of areas where most complaints are received from.
- Further, there is also an industrial complex in the same vicinity as Shongweni landfill site.

Odour Analysis - Keywords

Odour description reported by the complainants were analysed to find what type of odour is frequently reported.

Keywords such as petrol and diesel were mostly found in our analysis followed by chemicals.



Odour descriptions frequently reported by complainants

The highest number of keywords pertained to Fuel / Refinery where the complainants mentioned odour like Diesel, Fuel, Refinery smell, etc. Majority of the complaints (~93%) were from residents in Hillcrest, Plantations, Assagay, Winston Park and Gillitts.

Oil/Refinery/Diesel, Sulphur and Chemical smells were other mostly used description that complainants described about.

Wind direction Analysis

Out of total complaints from July 27, 2016 and November 10, 2016 only 1,024 of the 3066 complaints are in-line with the actual wind direction which results in ~**33%** accuracy. This may indicate that the complaints could be due to other operations in the area or might be incorrectly reported. Analysis was done on the complaints where wind direction and location was reported.

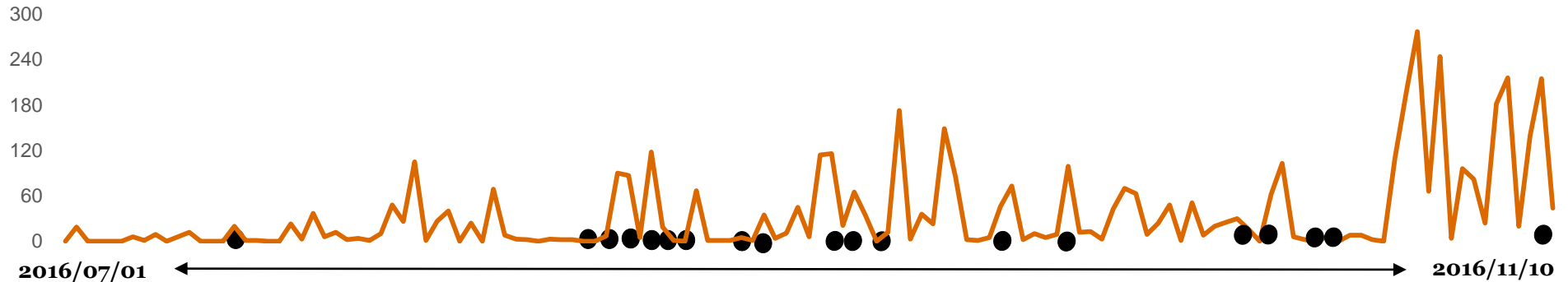
| Wind Direction / Area | Assagay | Gillitts | Hillcrest & Plantations | Summerveld | Winston Park | Grand Total |
|---|------------|------------|-------------------------|------------|--------------|-------------|
| E | 7 | 9 | 30 | 5 | 1 | 52 |
| ENE | 4 | 1 | 23 | 1 | 6 | 35 |
| ESE | 11 | 7 | 49 | 4 | 11 | 82 |
| N | 1 | | 2 | | | 3 |
| NE | | 2 | 9 | | 2 | 13 |
| NNE | 3 | | 2 | 1 | | 6 |
| NNW | | | 4 | | | 4 |
| NW | | 19 | 14 | | 23 | 56 |
| S | 86 | 47 | 226 | 3 | 25 | 387 |
| SE | 31 | 12 | 82 | 7 | 18 | 150 |
| SSE | 44 | 19 | 114 | 4 | 27 | 208 |
| SSW | 57 | 11 | 141 | | 6 | 215 |
| SW | 37 | 42 | 433 | 6 | 22 | 540 |
| W | 11 | 67 | 197 | 1 | 77 | 353 |
| WNW | 9 | 35 | 61 | 2 | 88 | 195 |
| WSW | 39 | 124 | 538 | 5 | 61 | 767 |
| Grand Total | 340 | 395 | 1925 | 39 | 367 | 3066 |
| Complaints in line with wind direction | 130 | 166 | 574 | 16 | 138 | 1024 |

 Wind direction inline with complaint area

Complaints and Meetings

The number of complaints received every day was compared with the event dates to check for any relationship in increase of complaints around the event dates.

Trend of daily complaints from July 2016 was analysed as part of this analysis.



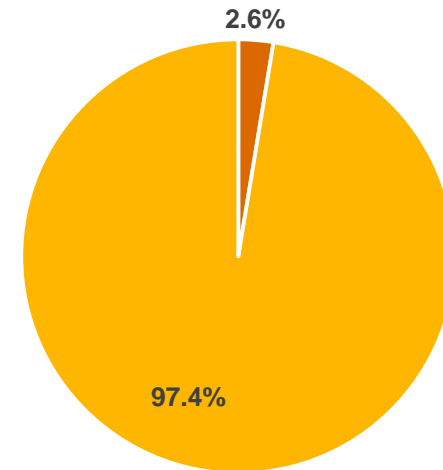
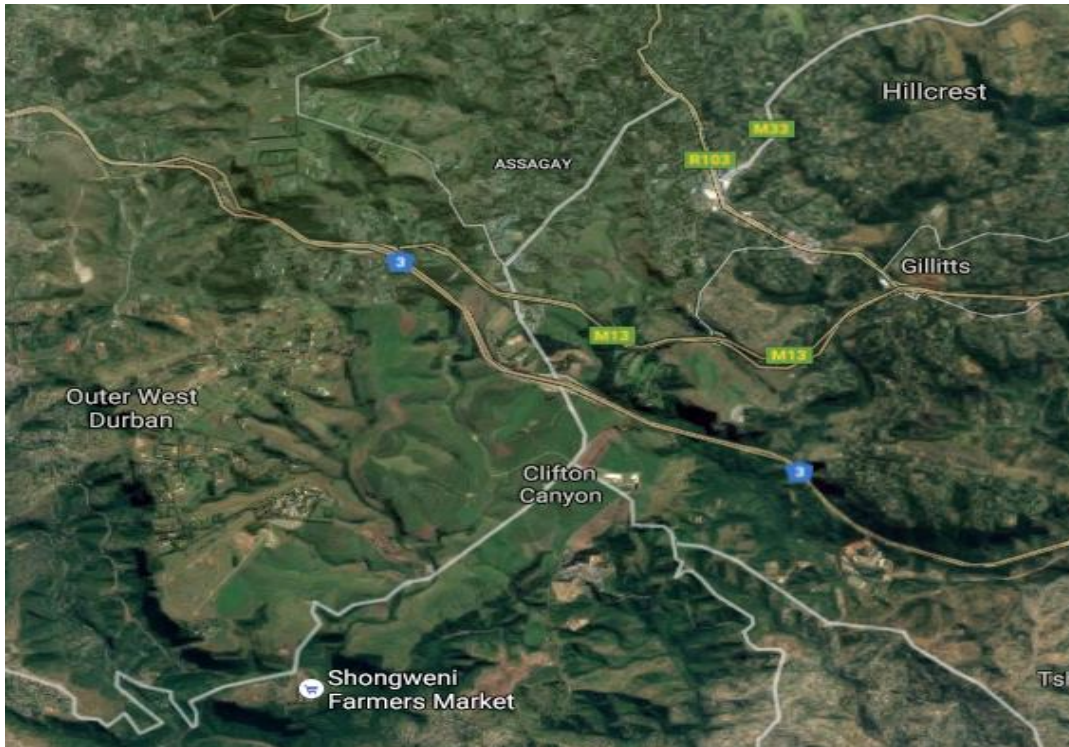
| Dates | Events |
|------------|---|
| 17/07/2016 | 5th Working Group Meeting |
| 17/08/2016 | DEA meeting (Mishelle and compliance site visit) and WG meeting |
| 18/08/2016 | Mark's visit to site and meet with community |
| 19/08/2016 | Community engage directly with Mark regarding the plan and reporting events to him. |
| 20/08/2016 | |
| 21/08/2016 | |
| 22/08/2016 | |
| 31/08/2016 | Mishelle and Enforcement teams follow up visit |
| 01/09/2016 | Mark's attendance at MC |
| 08/09/2016 | Des's community meeting South Durban |
| 09/09/2016 | DEA meets with Des and team |
| 12/09/2016 | Green Scorpions visit to Shongweni and community meeting |
| 22/09/2016 | Des's 2nd meeting in South Durban |
| 29/09/2016 | Monitoring Committee Meeting |
| 14/10/2016 | Green Scorpions visit to site and community |
| 16/10/2016 | Community meeting in Kwandengezi |
| 21/10/2016 | Compliance Notice |
| 23/10/2016 | Community meeting in Kwandengezi |
| 02/11/2016 | Green Scorpions visit to site and community |
| 10/11/2016 | Varied Compliance Notice |

Key Findings

- Unusual increase in daily complaints was observed around the days of event from August 2016.
- An average of ~**21** complaints was observed during this time period where daily count varies between 1 to 173 complaints.
- Increase between ~**79%** to ~**600%** in the daily average was observed around the event dates.

Affected Population

Number of unique complainants were compared with the estimated population count. This number was based on the 2011 census records and population growth percentage from 2011 to 2015



■ Unique Complainants ■ Estimated Population

Estimated population in the surrounding areas.

| Surrounding Areas | 2011 - Census | Assumed Increase(6%) | Derived Population |
|-------------------|---------------|----------------------|--------------------|
| Gillitts | 8,661 | 520 | 9,181 |
| Hillcrest | 13,329 | 800 | 14,129 |
| Outer West Durban | 7,408 | 444 | 7,852 |
| EThekwini NU | 11,200 | 672 | 11,872 |

Key Findings

- ~**2.5%** of the total surrounding population lodged complaints through the communication channels.
- Majority of the ~**2.5%** population is concentrated around Plantations, Hillcrest and Assagay areas.

Thank you