

Final Report on The Free Phase Oil Removal Project

AT:

BODO

Submitted to: Project Directorate and
Ogoni Restoration Project Department, SPDC

By

LAMOR/GIOLEE



December, 2017

APPROVAL PAGE

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contractor	Lamor/Giolee
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EXECUTIVE SUMMARY

There was an oil spill incident in Bodo from the Trans–Niger pipeline (TNP) in 2008 which led to a legal issue in the London court between the Bodo community and SPDC. The Netherland Embassy decided to mediate between SPDC and the Bodo community on possible ways that agreement can be reached and access be granted to SPDC to clean up the oil spill in Bodo creek. This intervention from the Netherland Embassy resulted to the formation of the Bodo Mediation Initiative (BMI). The Bodo Mediation Initiative (BMI) in consultation with the Bodo community and SPDC jointly agreed to engage international environmental companies of repute to carry out the cleanup of the oil spill in the Bodo creek.

Based on this agreement several international companies were invited to make technical presentations on their capabilities and the appropriate methods for the clean-up of Bodo creek. Lamor Corporation in conjunction with their Nigerian partner/representative Girolee Global Resources Ltd participated in the technical presentation to the BMI panel. Following the successful technical presentation, Lamor/Girolee was selected and engaged to participate in the clean-up of Bodo creek. The Bodo free phase oil removal contract was awarded to Lamor/Girolee in 2015 by SPDC/NAPIMS.

Lamor/Girolee carried out an initial mobilization to site in September 2015, which involved the setting up of the project office and tent for training, medical fitness examination for four hundred community youths. Following this, IMO Level 1 training was completed for the four hundred community youths.

On 30th September 2015 protest from the community youths led to the shutdown of the site after the training.

Lamor/Girolee was asked to remobilize to site after several intervention meetings convened by the BMI between the community and SPDC. Remobilization to site commenced on 11th September 2017.

Lamor/Girolee work area covered 600 hectares which comprised of three hundred and four (304) grids each measuring 200 by 200 meters. The project execution included key activities such as sediment agitation, low pressure flushing and debris collection across the workable grids. The project lasted for a period of 89 days.

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1.0 PROJECT OBJECTIVE

The project objective was to remove the free phase oil trapped in the layers of flat mud and sediment as well as on the water surface with the removal of objects such as plastics, debris, sticks, and algae mats.

The project execution included key activities such as sediment agitation, low pressure flushing and debris collection across the workable grids.

Lamor/Girolee work area covered 600 hectares which comprised of three hundred and four (304) grids each measuring 200 by 200 meters. The project execution included key activities such as sediment agitation, low pressure flushing and debris collection across the workable grids. The project lasted for a period of 89 days.

Replanting of healthy Mangrove plants was done on selected grids to demonstrate pollution reduction and environmental restoration.

2.0 SCOPE OF WORK

The project scope included:

- IMO level 1 Training/certification for four hundred (400) community youths
- Removal/recovery of free floating oil from the environment
- Agitation of sediment to release the trapped oil
- Low pressure flushing to release trapped hydrocarbon for recovery
- Collection of oily wastes and other waste streams.

3.0 COMMUNITY CONSULTATION

Lamor/Girolee carried out community consultation on the 6th of September 2015 prior to initial mobilization to site. Another consultation took place before remobilization on the 9th of September 2017 with a new community leadership. The consultation activities involved series of meetings and paying of homage to various leadership groups to strengthen the already secured Freedom-to-Operate (FTO) permit from the host community.

4.0 SITE MOBILIZATION

The first mobilization for the project commenced in September 2015. The project site was setup and training of four hundred community youths was completed. On 30th September 2015 due to agitation from the community youths, the project was suspended. Remobilization to the site commenced on 11th September 2017.

5.0 PROJECT OFFICE/BASE SET-UP

During the remobilization, the project office/base was set up at Patrick Water Side which was located southward of Bodo city at GPS coordinates **007^o.263883 E; 04^o.608080 N**. The project office/base set up included installation of the Porta cabins for site office operations, equipment staging areas, decontamination zone, first aid tent and HSE briefing center, access control point and other activities.



Plate 1: Mobilization to site



Plate 2: Equipment display during mobilization at the site office

6.0 Health Safety Environment (HSE)

6.1 Medical Examination of Workers

Medical fitness for all engaged workers was carried out before commencement of the project.



Plate 3: Medical examination of workers before commencement of work

6.2 Safety Induction of Workers

A general safety induction was conducted at the site office muster point. Workers were briefed on inherent hazards that may be associated with the project execution, and necessary precautions to be taken.

Following the safety induction personal protective equipment (PPEs) was issued to all workers. These included fire retardant coveralls, rain boots, rain coat, hard hats, hand gloves, live vest and eye goggles.

7.0 ACCESS CONTROL/HSE INDUCTION CENTER FOR VISITORS

To prevent entry of un-authorized persons into the project site and for proper orientation of visitors to the site, an access control point was established at the entrance of the site office area with a log book recording the basic information of the visitors and time of entry and exit from the site.

All visitors, on arrival, were given safety induction highlighting the identified hazards and controls while on visit to the site.



Plate 4: visitors receiving safety briefing at access control point.

8.0 COMMUNITY YOUTHS ENGAGEMENT AND TRAINING

The recruitment and selection of community youths for training was undertaken by the host community council of chiefs. A list of selected candidates was communicated to Lamor/Giolee through the community liaison team, the Bodo Mediation Initiative. The selected community youths were subjected to a medical fitness test by Lamor/Giolee medical team at the project base. The medically certified trainees were shortlisted for the training.

Lamor/Giolee completed the training for the four hundred (400) youths in September 2015 during the initial mobilization. The delegates were grouped into

batches of fifty (50) for effective learning purpose. The training session for each group lasted for five (5) working days which involved theory and practical sessions. The theoretical sessions developed by Lamor Corporation (duly certified by Nautical Institute in the UK to carry out IMO level 1, 2, and 3 training globally) focused on the basic shoreline cleanup and oil spill response techniques with respect to the various site scenarios. The hands-on sessions involved practical demonstrations on equipment handling. After the completion of training, the 400 youth were duly certified and certificate for IMO level 1 was issued to them during the second mobilization in 2017.

8.1 TRAINING OBJECTIVES

The training objectives were:

1. To give an overview of the main causes of marine and land oil spills.
2. An introduction to fate and transport of spilled oil in both marine and land environments.
3. To give an overview of the response operation.
4. To allow students to become familiar with the response plan and actions and their roles within the project.

The training was designed for community members to play a responsible role in their community and on the project as part of the response team to oil spill in their area.

There was a complete overview of techniques used to recover, contain and mitigate contamination following an oil spill. The course covered both large and small oil spill events, so delegates gained a wide range of knowledge and skill.



Plate 5: Class room training sessions



Plate 6: Hands-on exercises



Plate 7: Engaged and trained community youths

9.0 FREE PHASE OIL REMOVAL

The project execution commenced on 11th September, 2017 with the remobilization of equipment, materials and personnel to site. Medical fitness test was conducted for the engaged youths, safety induction for the entire project team and refresher training on oil spill response were also carried out.

9.1 PROJECT WORK TEAMS

The project work team comprised of two hundred and sixty three (263) community youths which were grouped into nine (9) teams made up of five (5) response and four (4) flushing teams. For effective supervision and work delivery each group was headed by a project team lead (supervisor), HSE Officer, Site Nurse, and a Community Foreman. The teams were spread across the work grids and given specific tasks daily.

9.2 DAILY TOOLS BOX BRIEFING

A daily tools box briefing was conducted every work day at the various muster points located points within the work area. Workers attendance was taken on the TRICARDS and all observable hazards were properly recorded.



Plate 8: Tools Box Briefing at work site muster points

9.3 WORK GRIDS

Lamor/Girolee work area covered 600 Hectares of land which were divided into 304 grids measuring 200 x 200 meters.

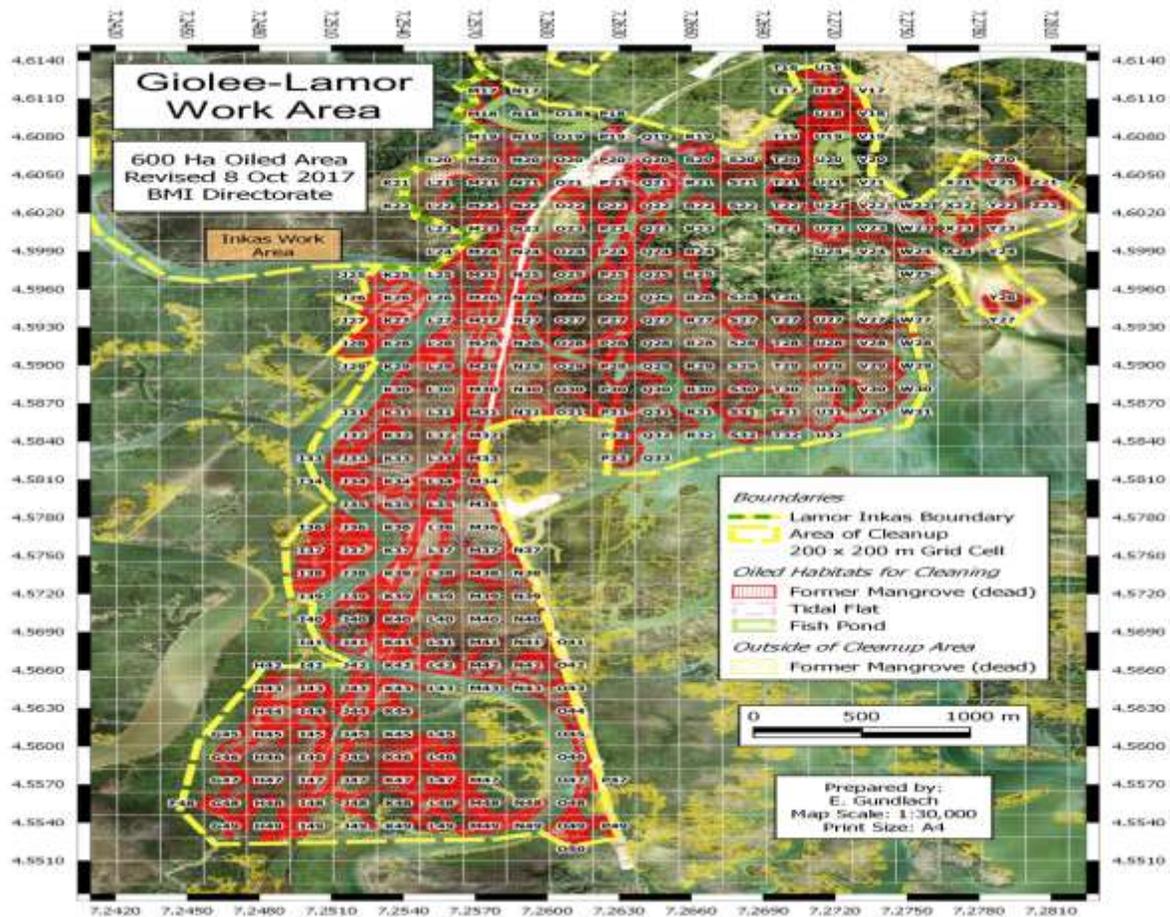


Figure 1: Lamor/Giolee Work Area

9.4 SITE TERRAIN

The work area was a mangrove swamp environment with soft mud, Tar, asphalt and hard substrates across the area. Some grids were pronominally soft mud flats covered with algae mats. Other grids had slightly hard substrate towards the shorelines and the sand pile area.

A sand pile heaped by a road construction company runs through and divides the entire site into two portions East and West of the sand road.

9.5 NATURE OF CONTAMINANTS ACROSS GRIDS

The nature of contaminants in the grids along the Trans Niger Pipe line (TNP) had tar/asphalt layer cover covering about 10% of the grids. Brown and black oil was also visible both on water and mud. The algae mat trapped black/brown oil beneath in most grids. Areas with few surviving mangroves were observed to have a thin film of silver color sheen on the water surface.



Plate 9: Area covered with algae mat



Plate 10: Asphalt



Plate 11: Debris along the shorelines

9.6 WORK ACTIVITIES/METHODOLOGIES

The project was executed using various methods to achieve the removal of trap oil from sediments, mud flats, and shore line. The main project activities across the grids included:

- Raking and agitation of sediments
- Breaking of algae mats to release trapped oil
- Low pressure flushing
- Collection of brown and black oil from the surface and subsurface during flushing
- Collection of various streams of waste from the site
- Hand tools such as rakes, forks and shovels were used for the sediment agitation and breaking of the algae mats.]

Lamor/Giolee used various techniques in flushing/agitating oil from the sediments and mud by taking advantage of the ebbing and rising tides. Flushing was done by applying low pressure water into the mud and sediment, which released trapped oil to the water surface. A boom was used to contain the oil on the water surface which was manually recovered into plastic Jeri-cans while the sheen and oil that could not be recovered was mopped up with absorbent pad.



Plate12: Low pressure flushing to release oil from the sediment

With this technique, all trapped/stranded oil from the various grids was successfully removed.

Some teams, using rakes, manually agitated and broke the algae mat while some other teams were involved in collection and sorting of the various waste streams across the shoreline and mud flats within the work area.



Plate 13: Sediment agitation by raking process

9.7 Pilot Mangrove Planting

Lamor/Giolee was directed by the SCAT team to demonstrate the replanting of mangrove nursery in some selected grids to test their survival with some juvenile volunteer mangroves that sprang up on site. This led to the transfer of over 700 mangrove from our existing nursery beds in selected grids given to us by SCAT team before commencing demobilization of equipment and personnel from site on the 9th Dec. 2017.



Plate 14: Mangrove planting by various visitors



Plate 15: Mangrove planting by various visitors

10.0 WASTE STREAM MANAGEMENT

10.1 Types of Waste

The waste streams encountered in the course of the project execution are:

1. Crude oil waste (slurry hydrocarbon)
2. Plastic waste
3. Oily debris
4. Used absorbents.
5. Food waste
6. Hydrocarbon asphalt
7. Used hand gloves
8. Bunkering hoses

The crude oil waste in the form of weathered crude oil was recovered during the low pressure flushing. The waste oil was released from the mud and scooped manually into the temporary storage facility.

The plastic wastes were in the form of oil stained bottles deposited on the shorelines by tidal waves.

The oily debris comprised of dead mangrove sticks and oil stained vegetative matter littered on the mud flats and shorelines; these were bagged and heaped in the temporary storage areas.



Plate 16: Debris littered shoreline

10.2 Waste Collection/Segregation

The various waste streams were segregated during collection and storage. Part of the work teams were assigned to waste collection. Some were responsible for the collection of specific type of waste streams. All solid wastes were collected in leak proof Bags which were heaped at strategic location as temporal storage areas. The heaps were secured within embankments burns and lined with tapeline liners to prevent secondary contamination.

The weathered crude oil waste was stored in two Fast tanks which were secured within embankments burns and lined with liners to prevent secondary contamination.



Plate 17: waste collection bagging and storage process



Plate 15: waste evacuation from creeks to shore

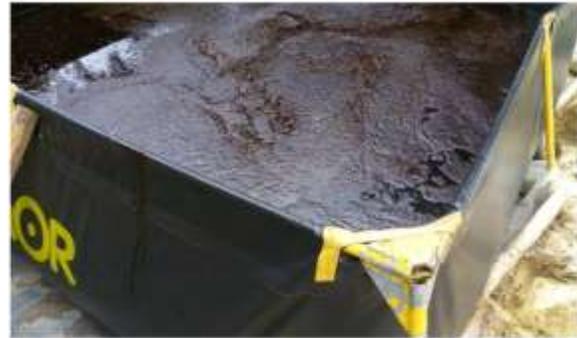


Plate 16: recovered crude oil waste in Fast Tanks.

10.2 waste evacuation

Waste was first evacuated from the grids location to a central storage location by speed boats. The central storage was lined with HDP liners to prevent leachate.

At the central storage area, waste was segregated into types (plastics, sticks and used sorbents).

10.3 Waste oil evacuation

The weathered crude oil waste (emulsified into slurry sludge) was evacuated from site to treatment facility by vacuum trucks.



Plate 17: Evacuation of crude oil waste from the Fast Tanks.

10.4 wastes evacuation

The debris wastes, absorbent pad and booms with food waste were evacuated from site to disposal facility by trucks.

A way bill/waste confinement notes were raised on each evacuation process.



Plate 18: Solid waste (oily debris) evacuated by truck

11.0 VISITORS

During the execution of this project Lamor-Giolee received and hosted a number of high profile visitors that visited the project site to confirm and evaluate the project execution process.

The visitors received on site during the project execution included:

- Netherland Ambassador to Nigeria
- Nigeria Ambassador to Netherland
- The General Manager government and community affairs from SPDC

- Chairman, BMI
- MOSOP president
- KAGOTE (Apex socio-cultural organization of Ogoni people)
- Representative from United State Consulate, Lagos
- Rev. Nimo Bassey



Legbosi Pyagbara(MOSOP President)



SPDC reps, BMI and Ambassador



Netherland Ambassador to Nigeria



Ambassador Orji N. Ngofa



Maria Davydenko(Rep. of USA Consulate)



KAGOTE deligation

Plate19: External Visitors to the project site



Plate20 : Rev. Nimo Bassey

12.0 WEEKLY WORK PROGRESS REPORTS

The work progress in the grids was reported weekly. The activities performed within the week were captured in the report and submitted to the Directorate. Challenges encountered in the course of project execution were also included in the weekly report.

Week Of Report	Period Of Report	Completed Grids Year – To-Date	Percentage Completion	Weekly KPI Report
2	Sept. 18 th – 23 rd 2017	23	7.6	83%
3	Sept. 25 th – 30 th 2017	50	16.95	84%
4	Oct. 2 nd – 7 th 2017	68	23.1	86%
5	Oct. 9 th – 14 th 2017	81	27.6	78%
6	Oct. 16 th – 21 st 2017	81	27.6	81%
7	Oct. 23 rd – 28 th 2017	103	33.3	84%
8	Oct. 30 th – Nov. 4 th 2017	125	40.45	86%
9	Nov. 6 th – 11 th 2017	161	52.97	89%
10	Nov. 13 th – 18 th 2017	172	56.57	89%
11	Nov. 20 th – 25 th 2017	220	72.4	92%
12	Nov. 27 th – 2 nd 2017	227	91	94%
13	Dec. 4 th – 9 th 2017	304	100	97%

12.1 COMPREHENSIVE COMPLETED GRIDS REPORT

Grid Id	Grids Cord.		Completion Status	Repollution Brown And Black Oil	Ph2 Y Or N	Mud+Blk oil	Note	Substrate	Nature Of Contaminants Encountered And % Cover.	Work Performed
F48	7.245504158	4.554844125	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
G45	7.247297032	4.560273687	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
G46	7.247300165	4.558464881	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
G47	7.247303297	4.556656074	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
G48	7.247306427	4.554847268	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
G49	7.247306427	4.554847268	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves		Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

H42	7.249089923	4.565703251	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H43	7.249093055	4.563894444	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H44	7.249096186	4.562085637	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H45	7.249099316	4.56027683	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H46	7.249102444	4.558468022	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H47	7.249105571	4.556659215	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H48	7.249108697	4.554850407	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
H49	7.249111822	4.553041599	100%	Yes along creek and	Y	Y	Phase 2 due to	Very soft mud w algal mat along creek going to	60% black oil form repollution on	Raking and agitating at low tides to break algae mat

				mud flats			repollution	hard chicoco w surviving mangroves	surface.	and low pressure flushing, sorbent pads
133	7.250864016	4.581985665	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very Soft mud w algal mat only accesable at high tide	Very light silver sheen water	Raking and agitation, low pressure flushing, sorbent pads
134	7.250867155	4.580176857	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very Soft mud w algal mat only accesable at high tide	Very light silver sheen water	Raking and agitation, low pressure flushing, sorbent pads
136	7.250873429	4.576559242	100%		N	Y	Removal of Nyper	Very Soft mud w algal mat only accesable at high tide	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
137	7.250876564	4.574750434	100%		N	Y	Removal of Nyper	Very Soft mud w algal mat only accesable at high tide	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
138	7.250879698	4.572941626	100%	Yes along creek and mud flats	Y	Y	Removal of Nyper	Very Soft mud w algal mat only accesable at high tide	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
139	7.250882831	4.571132818	100%	Yes along creek and mud flats	Y	Y	Removal of Nyper	Very Soft mud w algal mat only accesable at high tide	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
140	7.250885962	4.56932401	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
141	7.250889092	4.567515202	100%	Yes along creek and	Y	Y	Phase 2 due to	Very soft mud w algal	Very light silver	Raking and agitating at low

				mud flats			repollution	mat	sheen on water	tides to break algae mat and low pressure flushing, sorbent pads
142	7.250892221	4.565706393	100%	Yes along creek	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
143	7.250895349	4.563897585	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
144	7.250898475	4.562088776	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco	Very light silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
145	7.2509016	4.560279968	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
146	7.250904724	4.558471159	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
147	7.250907847	4.55666235	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
148			100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving	60% black oil form repollution on	Raking and agitating at low tides to break algae mat and low pressure flushing,

								mangroves	surface.	sorbent pads
I49	7.250914088	4.553044732	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Very soft mud w algal mat along creek going to hard chicoco w surviving mangroves	60% black oil form repollution on surface.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J25	7.252641237	4.596459281	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J26	7.252644381	4.594650472	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J27	7.252647524	4.592841664	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J28	7.252650666	4.591032856	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Brown oil on mud and water surface	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J29	7.252653807	4.589224048	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J31	7.252660084	4.585606431	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

J32	7.252663221	4.583797622	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat along creek with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J33	7.252666356	4.581988813	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J34	7.252669491	4.580180004	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J35	7.252672624	4.578371196	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J36	7.252675756	4.576562387	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J37	7.252678886	4.574753577	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J38	7.252682016	4.572944768	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing,

								mangroves		sorbent pads
J39	7.252685144	4.571135959	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J40	7.252688271	4.56932715	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J41	7.252691396	4.56751834	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J42	7.252694521	4.56570953	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J43	7.252697644	4.563900721	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J44	7.252700766	4.562091911	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

								mangroves		
J45	7.252703886	4.560283101	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Black oil along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J46	7.252707006	4.558474291	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Black oil along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J47	7.252710124	4.556665481	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Black oil along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J48	7.252713241	4.554856671	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Black oil along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
J49	7.252716356	4.553047861	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K21	7.254431042	4.603697671	100%		Y	N	Brown oil along banks creek flushing only	Moderate soft mud with algae mat and mangroves	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log	Raked to agitate and break the algae mats mop up black and brown oil sheen with absorbent pads

									areas	
K22	7.254434187	4.601888862	100%		Y	N	Replanting	Moderate soft mud with algae mat and mangroves	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas	Raked to agitate and break the algae mats mop up black and brown oil sheen with absorbent pads
K25	7.254443614	4.596462434	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K26	7.254446754	4.594653625	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K27	7.254449893	4.592844816	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K28	7.25445303	4.591036006	100%	Yes along creek and mud flats	N	N	Phase 2 due to repollution	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K29	7.254456166	4.589227197	100%	Yes along creek and mud flats	Y	N	Flush replant	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K30	7.254459301	4.587418387	100%	Yes along creek and mud flats	Y	N	Flush replant	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing,

										sorbent pads
K31	7.254462434	4.585609577	100%	Yes along creek and mud flats	Y	N	Flush replant	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K32	7.254465567	4.583800767	100%	Yes along creek and mud flats	Y	N	Flush replant	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K33	7.254468698	4.581991957	100%	Yes along creek and mud flats	Y	Y	Flush replant	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K34	7.254474956	4.578374337	100%	Yes along creek and mud flats	Y	Y	Flush replant	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K35	7.254478084	4.576565527	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K36	7.25448121	4.574756716	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K37	7.254484335	4.572947906	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

K38	7.254487458	4.571139095	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats phase 2 re worked at SCAT's request 7th Dec 1 flushing team 2hrs at high tide and teams raking	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	re worked on Thursday 7th Dec 17 as requested by SCAT flushed but only for 2hrs due to tide	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K39	7.25449058	4.569330285	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats phase 2 re worked at SCAT's request 7th Dec 1 flushing team 2hrs at high tide and teams raking	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	re worked on Thursday 7th Dec 17 as requested by SCAT flushed but only for 2hrs due to tide	Raking and agitating at low tides to break algae mat , sorbent pads
K40	7.254493702	4.567521474	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats phase 2 re worked at SCAT's request 7th Dec 1 flushing team 2hrs at high tide and teams raking	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	re worked on Thursday 7th Dec 17 as requested by SCAT flushed but only for 2hrs due to tide	Raking and agitating at low tides to break algae mat , sorbent pads
K41	7.254496821	4.565712663	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on	Very light silver sheen water	Raking and agitating at low tides to break algae mat , sorbent pads

								mud flats		
K42	7.25449994	4.563903852	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K43	7.254503057	4.562095041	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K44	7.254506173	4.56028623	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K45	7.254509288	4.558477419	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	black oil in mud along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K46	7.254512402	4.556668608	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	black oil in mud along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K47	7.254515514	4.554859796	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving	black oil in mud along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

								mangroves		
K48	7.254518625	4.553050985	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	black oil in mud along the creeks	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
K49	7.256169672 1	4.6055426626	100%	Yes along creek and mud flats	Y	Y	Phase 2 due to repollution	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L20	7.255715111 4	4.6037088552	100%		N		Replanting	Soft mud w hard substrate towards island area, w surviving mangroves.	Light sheen in mud	Raking and agitation, w sorbents flushed along creek banks
L21	7.256214879 8	4.6019358843	100%	Yes along creek and mud flats	N	N	Replanting	Soft mud w hard substrate towards island area, w surviving mangroves.	Light sheen in mud	Raking and agitation, w sorbents
L22	7.256239719	4.600083205	100%	Yes along creek and mud flats	N	Y	Replanting	Hard substrate, dead mangrove stumps	20% tar/asphalt, 3% black oil, 20% low vegetation	Raking and agitation to break algal mats, w sorbents for sheen flushed along creek
L23	7.256242857	4.598274394	100%		Y	Y	Flush along creek	Hard substrate, dead mangrove stumps	20% tar/asphalt, 3% black oil, 20% low vegetation	Raking and agitation to break algal mats, w sorbents for sheen flushed along creek
L24	7.256245993	4.596465584	100%	Yes along creek and mud flats	Y	Y	Flush along creek	Soft mud w algal mat and dead mangrove stumps	20% tar/asphalt, 3% black oil, 20% low	Raking and agitation to break algal mats, w sorbents for sheen flushed

									vegetation	along creek
L25	7.256249128	4.594656773	100%	Yes along creek and mud flats	y	Y	Flush along creek	Soft mud w algal mat and dead mangrove stumps	20% tar/asphalt, 3% black oil, 20% low vegetation	Raking and agitation, w sorbents flushed
L26	7.256252262	4.592847963	100%	Yes along creek and mud flats	y	Y	Flush along creek	Soft mud w algal mat and dead mangrove stumps	20% tar/asphalt, 3% black oil, 20% low vegetation	Raking and agitation, flushed and used w sorbents
L27	7.256252262	4.592847963	100%	Yes along creek and mud flats	y	Y	Flush along creek	Soft mud w algal mat and dead mangrove stumps	20% tar/asphalt, 3% black oil, 20% low vegetation	Raking and agitation, w sorbents flushed
L28	7.256255395	4.591039152	100%	Yes along creek and mud flats	Y	Y	Along creeks	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L29	7.256264786	4.585612719	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L30	7.256267914	4.583803908	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L31	7.25627104	4.581995097	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L32	7.25627729	4.578377474	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing,

								mud flats		sorbent pads
L33	7.256280413	4.576568662	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L34	7.256283534	4.574759851	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L35	7.256286655	4.572951039	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L36	7.256289774	4.571142227	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L37	7.256292891	4.569333415	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L38	7.256296008	4.567524604	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L39	7.256299123	4.565715791	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats phase 2 re worked at SCAT's request	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat , sorbent pads flushed

							7th Dec 17 flushing team 2hrs at high tide and teams raking			
L40	7.256302237	4.563906979	100%	Yes along creek and mud flats	Y	Y	Flush high tide with flat boats phase 2 re worked at SCAT's request 7th Dec 17 flushing team 2hrs at high tide and teams raking	Soft mud w algal mat along creek & pipe line with hard chicoco on mud flats	Very light silver sheen water	Raking and agitating at low tides to break algae mat , sorbent pads flushed
L41	7.25630535	4.562098167	100%	Yes along creek and mud flats	Y	Y	Flush high tide with flat boats phase 2 re worked at SCAT's request 7th Dec 17 flushing team 2hrs at high tide and teams raking	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L42	7.256308462	4.560289355	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L43	7.256311572	4.558480542	100%	Yes along creek and mud flats	N	N	Dependent on amount of repollution at	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing,

							present			sorbent pads
L45	7.256314681	4.55667173	100%	Yes along creek and mud flats	N	N	Dependent on amount of repollution at present	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L46	7.256317789	4.554862917	100%	Yes along creek and mud flats	N	N	Dependent on amount of repollution at present	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L47	7.256314681	4.55667173	100%	Yes along creek and mud flats	N	N	Dependent on amount of repollution at present	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L48	7.256320896	4.553054104	100%	Yes along creek and mud flats	N	N	Dependent on amount of repollution at present	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
L49	7.257958187 5	4.6091295702	100%	Yes along creek and mud flats	Y	Y	Dependent on amount of repollution at present	Soft mud w algal mat w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M17	7.258011032 4	4.6073749977	100%	Yes, along creek and in fish ponds	Y	Y	Replanting	Fish pond mildly soft mud in middle, hard at edges	Light sheen in mud	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M18	7.257991373 5	4.6054740198	100%	Yes, along creek and in fish ponds	Y	Y	Replanting	Fish pond mildly soft mud in middle, hard at edges	Light sheen in mud	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

M19	7.257954353	4.603719218	100%	Yes, along creek and in fish ponds	Y	Y	Replanting	Soft mud w hard substrate towards island areas, w surviving mangroves	Light sheen in mud	Raking and agitation, sorbent pads
M20	7.2579878909	4.6019158581	100%		N	N	Replanting	Soft mud w hard substrate towards island areas, w surviving mangroves	Light sheen in mud	Raking and agitation, sorbent pads
M21	7.258042108	4.600086352	100%		N	N		Soft mud w hard substrate towards island areas, w surviving mangroves	Light sheen in mud	Raking and agitation, sorbent pads
M22	7.258045241	4.59827754	100%		Y	Y	Heavy cooking sites	Hard substrate, dead mangrove stumps	40% Tar/asphalt, 20% black oil, 20 sheen	Raking and agitation, sorbent pads
M23	7.258048373	4.596468729	100%	Yes, along creek	Y	Y	Tar removal oldbunker site treat replant	Hard substrate, dead mangrove stumps	40% Tar/asphalt, 20% black oil, 20 sheen	Raking and agitation, sorbent pads flushed
M24	7.258051504	4.594659917	100%	Yes, along creek	Y	Y	Tar removal oldbunker site treat replant	Mild hard substrate	40% Tar/asphalt, 20% black oil, 20 sheen	Raking and agitation, sorbent pads flushed
M25	7.258054633	4.592851105	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w algal mat	40% Tar/asphalt, 20% black oil, 20 sheen	Raking and agitation, sorbent pads flushed
M26	7.258057762	4.591042293	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w hard substrate toward sand road	20% tar/ashpalt, 100% black/brown oil	Raking and agitating, low pressure flushing, sorbent pads
M27	7.258060889	4.589233481	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar	Soft mud w hard substrate toward sand	20% tar/ashpalt, 100% black/brown	Raking and agitating, low pressure flushing, sorbent

							Replanting	road	oil	pads
M28	7.257979182	4.636262564	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w hard substrate toward sand road	20% tar/ashpalt, 100% black/brown oil	Raking and agitating, low pressure flushing, sorbent pads
M29	7.258064015	4.587424669	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w hard substrate toward sand road	20% tar/ashpalt, 100% black/brown oil	Raking and agitating, low pressure flushing, sorbent pads
M30	7.258067139	4.585615856	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w hard substrate toward sand road	20% tar/ashpalt, 100% black/brown oil	Raking and agitating, low pressure flushing, sorbent pads
M31	7.258070262	4.583807044	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w hard substrate toward sand road	15% tar/ashpalt, 100% black/brown oil	Raking and agitating, low pressure flushing, sorbent pads
M32	7.258073384	4.581998232	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w algal mat	20% tar/ashpalt, 100% black/brown oil	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M33	7.258076505	4.580189419	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w algal mat	20% tar/ashpalt, 100% black/brown oil	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M34	7.258079625	4.578380606	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w algal mat	10% tar/ashpalt, 100% black/brown oil	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M35	7.258082743	4.576571794	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w algal mat	20% tar/ashpalt, 100% black/brown oil	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

M36	7.25808586	4.574762981	100%	Yes along creek and mud flats	Y	Y	Flush and remove Tar Replanting	Soft mud w algal mat	20% tar/ashpalt, 100% black/brown oil	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M37	7.258088976	4.572954168	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats where not accessable from creek	Soft mud w hard chicoco	30mTar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M38	7.25809209	4.571145355	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats where not accessable from creek	Soft mud w hard chicoco	15m Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M39	7.258098316	4.567527728	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats where not accessable from creek re worked 7th Dec as requested by scat and flushed	Soft mud w hard chicoco	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M40	7.258101427	4.565718915	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats re worked 7th Dec as requested by scat and flushed	Soft mud w hard chicoco	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas	Raking and agitating at low tides to break algae mat , sorbent pads
M41	7.258104536	4.563910102	100%	Yes along creek and mud flats	Y	Y	Flush hight tide with flat boats re worked 7th Dec as requested by	Soft mud w hard chicoco w surviving mangroves	Black oil beneath the algae mat at some areas and brown sheen in	Raking and agitating at low tides to break algae mat , sorbent pads

							scat and flushed		pockets of water log areas	
M42	7.258116962	4.556674847	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w hard chicoco w surviving mangroves	Soft mud w algal mat and dead mangrove stumps	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M43	7.258120065	4.554866033	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w hard chicoco w surviving mangroves	Soft mud w algal mat and dead mangrove stumps	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M47	7.258123167	4.553057219	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w hard substrate w surviving mangroves	Soft mud w algal mat and dead mangrove stumps	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M48	7.259366012	4.610473421	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w hard substrate w surviving mangroves	Soft mud w algal mat and dead mangrove stumps	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
M49	7.259779671 7	4.6091584046	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w hard substrate w surviving mangroves	Soft mud w algal mat and dead mangrove stumps	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
N17	7.259759654 2	4.6074036518	100%	Yes along creek and mud flats	Y	Y	replant	Fish pond mildly soft mud in middle, hard at edges	Light sheen in mud	Raked to agitate / break algal mats, sorbents flushed
N18	7.259788562 5	4.6055027912	100%	Yes along creek and mud flats	Y	Y	replant	Fish pond mildly soft mud in middle, hard at edges	Light sheen in mud	Raked to agitate / break algal mats, sorbents flushed area
N19	7.259800109	4.603748116	100%	Yes along creek and	N	N	replant	Soft areas w swamp	Thin asphalt layer	Raked to agitate / break

				mud flats				buggy track + algal mats	10% cover	algal mats, sorbents flushed along creeks
N20	7.259809466 2	4.6018959462	100%	Yes along creek and mud flats	N	N	replant	Soft mud w algal mat + surviving mangroves	Light sheen in mud	Raked to agitate / break algal mats, sorbents
N21	7.259844498	4.600089495	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w algal mat + dead mangrove stumps	20% tar/ashpalt, 100% black/brown oil	Raked to agitate / break algal mats + flush, sorbents
N22	7.259847627	4.598280682	100%	Yes along creek and mud flats	Y	Y	replant	Hard substrate	20% tar/ashpalt, 100% black/brown oil	Raked to agitate / break algal mats + flush, sorbents
N23	7.259850755	4.596471869	100%	Yes along creek and mud flats	Y	Y	replant	Hard substrate w dead mangrove stumps	20% tar/ashpalt, 70% black/brown oil	Raked to agitate / break algal mats + flush, sorbents
N24	7.259853881	4.594663056	100%	Yes along creek and mud flats	Y	Y	replant	Moderate soft mud w algal mat + dead mangrove stumps	20% tar/ashpalt, 50% black/brown oil	Boomed, agitate and flush, recover free phase, sorbents
N25	7.259857006	4.592854243	100%	Yes along creek and mud flats	Y	Y	replant	Moderate soft mud w algal mat + dead mangrove stumps	20% tar/ashpalt, 40% black/brown oil	Boomed, agitate and flush, recover free phase, sorbents
N26	7.259860129	4.591045429	100%	Yes along creek and mud flats	Y	Y	replant	10% brown sheen in pockets of water logged creeks. 10% light sheen over water	20% tar/ashpalt, 30% black/brown oil	Boomed, agitate and flush, recover free phase, sorbents
N27	7.259863252	4.589236616	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w algal mat + dead stumps	20% tar/ashpalt, 30% black/brown oil	Raking and agitating , low pressure flushing, sorbent pads
N28	7.259866373	4.587427803	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud	20% tar/ashpalt, 30% black/brown oil	Raking and agitating , low pressure flushing, sorbent pads

N29	7.259869493	4.585618989	100%	Yes along creek and mud flats	N	N	replant	Soft mud w hard substrate toward sand road	Very light silver sheen water	Raking and agitating , low pressure flushing, sorbent pads
N30	7.259888187	4.574766106	100%		Y	Y	replant	Soft mud w hard substrate toward sand road	Very light silver sheen water	Raking and agitating , low pressure flushing, sorbent pads
N31	7.259891298	4.572957292	100%	Yes along creek and mud flats	Y	Y	to dates conflict with Ph2	Soft mud w algal mat 0-30cm oil under between the mud and chicoco	Very light silver sheen water	Raking and agitating , low pressure flushing, sorbent pads
N37	7.259894408	4.571148478	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate toward sand road	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
N38	7.259897517	4.569339663	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate toward sand road	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
N39	7.259900625	4.567530849	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate toward sand road	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
N40	7.259903731	4.565722034	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate toward sand road	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads
N41	7.259906836	4.56391322	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate toward sand road	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing, sorbent pads

N42	7.259922343	4.554869145	100%	Yes along creek and mud flats	Y	Y		Very soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
N43	7.25992544	4.55306033	100%	Yes along creek and mud flats	Y	Y		Very soft mud w algal mat	Light silver sheen over water when agitated	Raking and agitating at low tides to break algae mat and low pressure flushing
N48	7.2616253756	4.6092116635	100%	Yes along creek and mud flats	N	N		Soft mud w hard substrate toward sand road	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
N49	7.2616539938	4.6074326582	100%	Yes along creek and mud flats	N	N		Very soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
O18	7.2616097936	4.605629096	100%	Yes along creek and mud flats	Y	T		Fish pond mildly soft in middle and hard at edges	Light silver sheen over water when agitated	Raked to agitate and break algal mat, w sorbents flushed
O19	7.261621640	4.603752570	100%	Yes along creek and mud flats	Y	T		Fish pond mildly soft in middle and hard at edges	Light silver sheen over water when agitated	Raked to agitate and break algal mat, w sorbents flushed
O20	7.261643765	4.601901447	100%	Yes along creek and mud flats	Y	T	replant	Soft mud w algal mat + surviving mangroves	Light silver sheen in mud	Raked to agitate and break algal mat, w sorbents flushed
O21	7.26164689	4.600092633	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud at Patrick Waterside pontoon area	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas. 80%	Raked to agitate and break algal mat, w sorbents flushed
O22	7.261650014	4.598283819	100%	Yes along creek and mud flats	Y	Y	replant	Hard substrate silt sand with reviving mangrove	Very light silver sheen water	Raking and agitating at low tides to break algae mat

										and low pressure flushing.
O23	7.261653137	4.596475005	100%	Yes along creek and mud flats	Y	Y	replant	Hard substrate silt sand with reviving mangrove	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
O24	7.261656259	4.59466619	100%	Yes along creek and mud flats	Y	Y	replant	Hard substrate with algae mat and dead mangrove stumps	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas. 80%	Raking and agitating at low tides to break algae mat and low pressure flushing
O25	7.261659379	4.592857376	100%	Yes along creek and mud flats	N	N	replant	Very soft mud w algal mat	Very light silver sheen water	Raking and agitating , low pressure flushing, sorbent pads
O26	7.261662499	4.591048561	100%	Yes along creek and mud flats	N	N	replant	Very soft mud w algal mat	Very light silver sheen water	Raking and agitating , low pressure flushing, sorbent pads
O27	7.261665616	4.589239747	100%	Yes along creek and mud flats	N	N	replant	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
O28	7.261668733	4.587430932	100%	Yes along creek and mud flats	N	N	replant	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
O29	7.261671849	4.585622117	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w algal mat	Sheen on the chicoco very soft mud on edges of creeks with oil in it	Raking and agitating at low tides to break algae mat and low pressure flushing
O30	7.261702935	4.567533965	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w algal mat	Sheen on the chicoco very soft mud on edges of	Raking and agitating at low tides to break algae mat and low pressure flushing

									creeks with oil in it	
O31	7.261706037	4.565725149	100%	Yes along creek and mud flats	Y	Y	replant	Soft mud w algal mat 0-30cm oil under between the mud and chicoco	Sheen on the chicoco very soft mud on edges of creeks with oil in it	Raking and agitating at low tides to break algae mat and low pressure flushing
O41	7.261709137	4.563916333	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O42	7.261712236	4.562107517	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O43	7.261715335	4.560298701	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O44	7.261718431	4.558489885	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O45	7.261721527	4.556681069	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O46	7.261724621	4.554872252	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O47	7.261727714	4.553063436	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O48	7.261730806	4.551254619	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand	Tar / Asphalt: 10% towards the sand	Raking and agitating at low tides to break algae mat

								road	road	and low pressure flushing
O49	7.263422695 8	4.60919169	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
O50	7.263354274 7	4.6073637062	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards sand road	Tar / Asphalt: 10% towards the sand road	Raking and agitating at low tides to break algae mat and low pressure flushing
P18	7.263431568 1	4.6055360694	100%	Yes along creek and mud flats	Y	Y		Fish pond mildly soft mud in middle, hard at edges	Light silver sheen over water when agitated	Raking and agitating at low tides, w sorbents flushed along creeks banks
P19	7.263394770 1	4.603683784	100%	Yes along creek and mud flats	Y	Y		Hard substrate w dead vegetation at Patrick waterside pontoon area	Light silver sheen over water when agitated	Raking and agitating at low tides, w sorbents flushed along creeks banks
P20	7.263446162	4.601904582	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat Patrick waterside	Light sheen +3% asphalt thin layer at shoreline edge	Raking and agitating at low tides, w sorbents flushed along creeks banks
P21	7.263449283	4.600095766	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat Patrick waterside	Light sheen +3% asphalt thin layer at shoreline edge	Raking and agitating at low tides, w sorbents flushed along creeks banks
P22	7.263452403	4.598286951	100%	Yes along creek and mud flats	Y	Y		Soft mud on edges, Hard silt/sand substrate w reviving mangroves	Light sheen +7% asphalt thin layer at shoreline edge	Raking and agitating at low tides, w sorbents flushed along creeks banks
P23	7.263455521	4.596478136	100%	Yes along creek and mud flats	Y	Y		Soft mud on edges, Hard silt/sand substrate w reviving mangroves	Light sheen +3% asphalt thin layer at shoreline edge	Raking and agitating at low tides to break algae mat and low pressure flushing
P24	7.263458638	4.59466932	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing

P25	7.263461754	4.592860505	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
P26	7.263464869	4.591051689	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
P27	7.263467982	4.589242873	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
P28	7.263471094	4.587434057	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Tar / Asphalt: 25% towards the pipe line cooking sites.	Raking and agitating at low tides to break algae mat and low pressure flushing
P29	7.263474205	4.585625241	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Tar / Asphalt: 30% towards the pipe line cooking sites.	Raking and agitating at low tides to break algae mat and low pressure flushing
P30	7.263477315	4.583816425	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Tar / Asphalt: 20% towards the pipe line cooking sites.	Raking and agitating at low tides to break algae mat and low pressure flushing
P31	7.263480423	4.582007609	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w algal mat	5% asphalt cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
P32	7.263492845	4.574772343	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w algal mat	5% asphalt cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
P33	7.263495947	4.572963527	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	5% asphalt cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
P47	7.265200095	4.6073682148	100%	Yes along creek and	Y	Y		Soft mud w hard substrate towards sand	Tar / Asphalt: 10% towards the sand	Raking and agitating at low tides to break algae mat

	9			mud flats				road	pile.	and low pressure flushing
P49	7.265228821 7	4.6055404575	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards the shoreline	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing
Q19	7.265216246	4.603712599	100%	Yes along creek and mud flats	Y	Y		Soft mud w algae mat at Patrick water side pontoon area	Light sheen +3% asphalt thin layer at shoreline edge	Raking and agitating at low tides, w sorbents
Q20	7.265248561	4.601907712	100%	Yes along creek and mud flats	Y	Y		Soft mud w algae mat at Patrick water side pontoon area	Light sheen +3% asphalt thin layer at shoreline edge	Raking and agitating at low tides, w sorbents
Q21	7.265251677	4.600098896	100%	Yes along creek and mud flats	Y	Y		Soft mud w algae mat at Patrick water side pontoon area	Light sheen +3% asphalt thin layer at shoreline edge	Raking and agitating at low tides, w sorbents
Q22	7.265254792	4.598290079	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q23	7.265257906	4.596481262	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards the shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q24	7.265261019	4.594672446	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards the shoreline	Tar / Asphalt: 10% towards and on shore line.	Raking and agitating at low tides to break algae mat and low pressure flushing
Q25	7.26526413	4.592863629	100%	Yes along creek and mud flats	N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q26	7.26526724	4.591054812	100%		N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing

Q27	7.265270349	4.589245995	100%		N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q28	7.265273457	4.587437178	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	5% asphalt/Tar cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
Q29	7.265276563	4.58562836	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q30	7.265279668	4.583819543	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q31	7.265282772	4.582010726	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q32	7.266997355 8	4.6073726001	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
Q33	7.26702595	4.6055935804	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
R19	7.267013429	4.603741351	100%	Yes along creek and mud flats	Y	Y		Soft mud w few reviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat and low pressure flushing
R20	7.267050961	4.601910838	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat and low pressure flushing

R21	7.267054073	4.60010202	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards the shoreline, w surviving mangroves	Very soft mud with oil in it along the creek	Raking and agitating at low tides to break algae mat and low pressure flushing
R22	7.267057183	4.598293202	100%	Yes along creek and mud flats	N	N		Soft mud w hard substrate towards the shoreline, w surviving mangroves	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
R23	7.267060293	4.596484384	100%		N	N		NO work required as in the middle of the Island and in dense forest	Middle of the Island no work required	NIL
R24	7.267063401	4.594675566	100%		Y	Y		Soft mud w hard substrate towards the shoreline	7% asphalt cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
R25	7.267066507	4.592866748	100%		Y	Y		Soft mud w hard substrate towards the shoreline	7% asphalt cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
R26	7.267069613	4.59105793	100%		Y	Y		Soft mud w algal mat	7% asphalt cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
R27	7.267072717	4.589249112	100%		Y	Y		Soft mud w algal mat	2% asphalt/Tar cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
R28	7.26707582	4.587440293	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	5% asphalt/Tar cover, brown oil and light sheen	Raking and agitating at low tides to break algae mat and low pressure flushing
R29	7.267078922	4.585631475	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing

R30	7.267082023	4.583822656	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
R31	7.268774743 9	4.6055491017	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
R32	7.268859312 1	4.6037214766	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
S20	7.268847144	4.605531596	100%	Yes along creek and mud flats	Y	y	Contamination from illegal bunkering site	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat and low pressure flushing
S21	7.268850254	4.603722778	100%	Yes along creek and mud flats	Y	y	Contamination from illegal bunkering site	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat and low pressure flushing
S22	7.268853362	4.601913959	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
S26	7.268865784	4.594678683	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards shore line Asphalt and tar also	Tar / Asphalt: 10% towards and on shore line.	Raking and agitating at low tides to break algae mat and low pressure flushing
S27	7.268868886	4.592869863	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat thick mud and oil along creeks	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
S28	7.268871987	4.591061044	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat thick mud and oil along creeks	Tar 3% & algal mat Brown oil in mud, silver sheen on	Raking and agitating at low tides to break algae mat and low pressure flushing

									water	
S29	7.268875087	4.589252224	100%	Yes along creek and mud flats	Y	Y		Soft mud w algal mat thick mud and oil along creeks	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
S30	7.268794091	4.6362815	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards shore	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
S31	7.268878185	4.587443405	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w hard substrate towards shore	10% Tar/Asphalt towards Island, brown oil in mud w silver sheen on water.	Raking and agitating at low tides to break algae mat and low pressure flushing
S32	7.270561229 3	4.6110125684	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w hard substrate	10% Tar/Asphalt towards Island, brown oil in mud w silver sheen on water.	Raking and agitating at low tides to break algae mat and low pressure flushing
T16	7.270640561 8	4.6073327268	100%		Y	Y	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat FLUSHING
T17	7.270596347 6	4.6055291656	100%		Y	Y	Replanting	Moderate soft mud w algae mat + dead mangrove	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas	Raked to agitate and break the algae mats mop up black and brown oil sheen with absorbent pads flushed along creek sides
T18	7.270632221 4	4.6037501599	100%		Y	Y	Replanting	Moderate soft mud w algae mat + dead	Silver sheen along shoreline, clean	Raked to agitate and break the algae mats mop up black and brown oil sheen

								mangrove	mud	with absorbent pads flushed along creek sides
T19	7.270646449	4.607343535	100%		Y	Y	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushing along creek
T20	7.270649556	4.605534716	100%		Y	Y	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushing along creek
T21	7.270652661	4.603725896	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushing along creek
T22	7.270655765	4.601917076	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushing along creek
T23	7.270658867	4.600108255	100%	Yes along creek and mud flats	Y	Y		Soft mud w hard substrate	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
T26	7.270668168	4.594681794	100%		Y	Y	Contamination from illegal bunkering site	Soft mud w hard substrate	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
T27	7.270671266	4.592872974	100%		Y	Y		Soft mud w hard substrate	Tar / Asphalt: 10% towards the sand pile.	Raking and agitating at low tides to break algae mat and low pressure flushing
T28	7.270674362	4.591064153	100%	Yes along creek and mud flats	Y	Y	Replanting ASAP	Soft mud w hard substrate	Tar / Asphalt: 10% towards the sand	Raking and agitating at low tides to break algae mat

									pile.	and low pressure flushing
T29	7.270677457	4.589255332	100%		Y	Y	Replanting	Soft mud w hard substrate	Asphalt cover: 10%, brown oil and light sheen.	Raking and agitating at low tides to break algae mat and low pressure flushing
T30	7.271845283	4.612331733	100%		Y	Y	Replanting	Soft mud w hard substrate	Asphalt cover: 10%, brown oil and light sheen.	Raking and agitating at low tides to break algae mat and low pressure flushing
T31	7.272431539 0	4.6109440026	100%		Y	Y	Replanting	Soft mud w hard substrate	Asphalt 7% Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
T32	7.272433412 8	4.6091649219	100%	Yes along creek and mud flats	Y	Y	Replanting	Soft mud w hard substrate	Asphalt 3% Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
U16	7.272461936 5	4.6074102757	100%		Y	y	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushed along creek
U17	7.272466113 4	4.6056799403	100%		Y	Y	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushed along creek
U18	7.272405182 4	4.6037544691	100%		Y	N	Replanting	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushed along creek
U19	7.272458168	4.601920188	100%		Y	Y	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushed along creek

U20	7.272461266	4.600111366	100%		Y	y	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushed along creek
U21	7.272464363	4.598302545	100%		Y	y	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat flushed along creek
U22	7.272473647	4.59287608	100%	Yes along creek and mud flats	Y	y	Replanting ASAP	Soft mud w hard chicoco		Raking and agitating at low tides to break algae mat and low pressure flushing
U23	7.272476739	4.591067258	100%	Yes along creek and mud flats	Y	y	Replanting ASAP	Soft mud w hard chicoco	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
U24	7.272479829	4.589258436	100%	Yes along creek and mud flats	Y	y	Replanting ASAP	Soft mud w hard chicoco	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
U27	7.272482919	4.587449614	100%		Y	Y	Replanting ASAP	Soft mud w hard chicoco	Light sheen +6% asphalt thin layer at shoreline edge	Raking and agitating at low tides to break algae mat and low pressure flushing
U28	7.272486007	4.585640792	100%		Y	Y	Replanting ASAP	Soft mud w hard chicoco	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
U29	7.272489094	4.583831969	100%		Y	Y	Replanting ASAP	Soft mud w hard chicoco	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
U30	7.274228755 9	4.6109727428	100%		N	N	Replanting ASAP	Soft mud w hard chicoco	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing

U31	7.274230498 7	4.6092424	100%		Y	Y	Replanting ASAP	Soft mud w hard chicoco	Tar / Asphalt: 10% towards and on shore line.	Raking and agitating at low tides to break algae mat and low pressure flushing
U32	7.273368373 7	4.6074124788	100%	Yes along creek and mud flats	Y	Y	Replanting ASAP	Soft mud w hard chicoco	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
V17	7.273485293 3	4.6060479743	100%		N	N	Replanting ASAP	Soft mud w hard shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat
V18	7.274197524 1	4.6037831999	100%		N	N	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat
V19	7.274260573	4.601923295	100%		N	N	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat
V20	7.274263667	4.600114472	100%		Y	Y	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat
V21	7.274266759	4.59830565	100%		Y	Y	Replanting ASAP	Soft mud w hard substrate towards the shoreline, w surviving mangroves	Silver sheen along shoreline, clean mud	Raking and agitating at low tides to break algae mat
V22	7.274276029	4.592879181	100%	Yes along creek and mud flats	Y	Y	Replanting ASAP	Soft mud w hard substrate towards shoreline	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
V23	7.274279116	4.591070358	100%	Yes along creek and	Y	Y	Replanting	Soft mud w algal mat	Very light silver	Raking and agitating at low

				mud flats					sheen water	tides to break algae mat and low pressure flushing
V24	7.274282202	4.589261535	100%		N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
V27	7.274285287	4.587452711	100%		Y	Y		Soft mud w algal mat	Tar / Asphalt: 10% towards and on shore line.	Raking and agitating at low tides to break algae mat and low pressure flushing
V28	7.274288371	4.585643888	100%		Y	Y		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
V29	7.276062979	4.601926398	100%		N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
V30	7.276066068	4.600117574	100%		N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
V31	7.276069156	4.59830875	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
W22	7.276072243	4.596499926	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Tar / Asphalt: 10% towards and on shore line.	Raking and agitating at low tides to break algae mat and low pressure flushing
W23	7.276075328	4.594691102	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Brown oil in mud, silver sheen on water	Raking and agitating at low tides to break algae mat and low pressure flushing
W24	7.276078412	4.592882278	100%	Yes along creek and mud flats	Y	Y	Contamination from illegal	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat

							bunkering site			and low pressure flushing
W25	7.276081495	4.591073453	100%		N	N		Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat
W27	7.276084577	4.589264629	100%		Y	Y	Contamination from illegal bunkering site	Soft mud w algal mat	Tar / Asphalt: 10% towards and on shore line.	Raking and agitating at low tides to break algae mat and low pressure flushing
W28	7.276090736	4.58564698	100%		Y	Y	Replanting ASAP	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
W29	7.277792035 7	4.6037919137	100%		Y	Y	Replanting ASAP	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
W30	7.277865387	4.601929496	100%		Y	Y	Replanting ASAP	Soft mud w algal mat	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
X21	7.277868471	4.600120671	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Moderate soft mud w algae mat and dead mangrove	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas	Raked to agitate and break the algae mats mop up black and brown oil sheen with absorbent pads
X22	7.277871555	4.598311846	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
X23	7.279626539 8	4.6054779570	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing

X24	7.279662274 1	4.6037476913	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Y20	7.279667795	4.60193259	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Y21	7.279670875	4.600123764	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Y22	7.279673954	4.598314937	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Y23	7.279680108	4.594697284	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Y24	7.279683183	4.592888458	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Moderate soft mud with algae mat and dead mangrove	Black oil beneath the algae mat at some areas and brown sheen in pockets of water log areas	Raked to agitate and break the algae mats mop up black and brown oil sheen with absorbent pads
Y26	7.281411015 9	4.6037275494	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing

Y27	7.281470205	4.601935679	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Z21	7.281467129	4.603744507	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing
Z22	7.281470205	4.601935679	100%	Yes along creek and mud flats	Y	Y	Replanting now Contamination from illegal bunkering site	Soft mud w hard substrate towards shoreline	Very light silver sheen water	Raking and agitating at low tides to break algae mat and low pressure flushing

ITEM	PLAN	ACTUAL
CUMMULATIVE MANHOUR		181,168
FAT	0	0
LTI	0	0
FAC	0	9
MTC	0	40
UA/UC	0	177/14
NEAR MISS	0	5
DRILLS	4	4

13.0 Challenges

13.1 Re-pollution

Crude oil re pollution due to oil bunkering activity, Illegal refineries, 24" Pipe line maintenance, military burning of bunker barges all have been a major challenge in the course of the project execution. Most areas especially the shorelines are being re polluted on daily basis.



Plate21: Re polluted areas along the shoreline and work grids



Plate22: military burning off boat filled with crude

13.2 Algae Mat Re-Growth

Algae Mat re-growth has been witnessed in some areas where work had been completed as quickly as three days due to the increased temperatures and growing season. This development is challenging since the re growth could occur within a space of few weeks of work completion.

13.3 Work environment Terrain

The work environment itself was challenging. Workers experienced difficulties in Very soft mud areas. Sink hole on the pipe line right of way was a difficult area to work.

Tide: we also had challenge of tide changing weekly which also affected work in some areas that cannot be accessed during low tide.

13.4 Logistics

We spent a lot of funds on hiring of boat considering distance from shore into the creek by conveying 263 person daily far into the creeks where some grids existed.

13.5 Food supply

We had challenge with the quality of food supply and time of delivery which was usually late and this affected the man-hour.

13.6 Community workers attitude to work

We had some challenges with the attitude and conduct of the workers based on that fact that this was the first time they are doing this kind of project. Some of them fell sick, while some of them changed and brought someone to replace them without any medical examination or HSE induction.

Lateness to work was another challenge we experienced in the cause of executing this project. As the community workers came to work when they like and close when they like and when we put in some the control measures community leadership will intervene.

13.7 Excessive community demands

One of the biggest challenge we had was excess demands from various groups from the community, for example; council of Chiefs, traditional rulers, CAN, security committee, mediation committee and youths.

14.0 Recommendations

Lamor/Giolee recommends that concerted effort should be made to stop re-pollution or reduce it to its barest minimum by all stake holders before the commencement of any further cleanup in the Bodo creek.

In the next cleanup, scope of work should be properly defined and all needed elements should be well captured to avoid any issue during the execution process.



We also recommend that some reasonable percentage of already trained community workers who participated in this process should be retained.

The community should be advised to allow contractors to concentrate on work without placing unnecessary demands. So we hereby recommend that SPDC should ensure that they don't distract the contractors from focusing on the job.

We recommend that proper communication channels be designed between SPDC, the community and the contractor so as to reduce the level of unwanted rumors and misrepresentation of facts from the community.

We recommend that once the military arrest any illegal boat or barge with crude it should not be burnt off, rather they should contact SPDC to recover the oil as burning the boat has two consequences on the environment; polluting the air and releasing more hydrocarbon content to the environment.

LANDLORDS/COMMUNITY CERTIFICATION

CLEAN UP OF CRUDE IMPACTED MATERIALS:

SITE NAME: FREE PHASE REMOVAL[@] IN BODO CHECK AREA 1

COMPANY NAME: GIOLEE/LAMOR
BY

CONTRACT NO:

INCIDENT NO:

This is to confirm that **THE ABOVE NAMED COMPANY** has completed the remediation works of the **ABOVE NAMED SITE** in accordance to SPDC specifications and to the satisfaction of the site landlords/community.

Signed/Date: [Signature]
(Contractor)

Name: LESI MAR
(Managing Director)

Signed/Date: [Signature] 9/12/2017
(Landlords/Community Representative)

Name: HRH, KING J. B. BEREBO
(Position of Representative)
PARA-ACUNT-RULER BODO CITY

Signed/Date: _____
(SPDC Field Supervisor)

Name: _____
(The SPDC Field Supervisor signs subject to the condition that the contractor is not indebted to the worker(s) of that site).



WASTE MANIFEST 0001

49 Orogbum Crescent, GRA Phase II, Port Harcourt, Rivers State, Nigeria.
patrick@icrenltd.com, icltd2015@gmail.com
+234 803 341 1451, +234 081 837 40528 www.icrenltd.com

HAZARDOUS/NON HAZARDOUS:

MANIFEST DOC. NO: 2017/11/28
MANIFEST CONTROL NUMBER: 0001/1/28 2017
DATE 28/11/2017

1. GENERATOR'S NAME: GIOLEE GLOBAL RESOURCES LTD.
3. GENERATOR'S ADDRESS: 18,440 STREET, KUMUOMASE R/STATE
4. GENERATOR'S CONTACT PHONE: 07026931598, 07031513616 ✓
5. TRANSPORTER (COMPANY NAME/PHONE NO): AUGUSTINE NIG LTD
6. DESIGNATED TREATMENT PLANT: ICREN MRF.
7. FACILITY ADDRESS: IGBOFEHE, R/STATE
8. CLASS OF WASTE (DESCRIPTION): ONLY DEBRIS
9. WASTE QUANTITY (KG): 3,912kg.

10. TRANSPORTER (COMPANY NAME):

I hereby declare that the content of this consignment described and classified accordingly. I have also made effort to minimize my waste and select the best waste management method

13. WASTE QUANTITY (KG): NAME: ONLY DEBRIS
Akoh Chidi Bese

14. SIGNATURE: *[Signature]*

15. DATE/TIME: 28/11/2017 / 11:06hrs.



WASTE MANIFEST

0002

49 Orogbum Crescent, GRA Phase II, Port Harcourt, Rivers State, Nigeria.
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HAZARDOUS/NON HAZARDOUS:

MANIFEST DOC. NO: 20172/02.
MANIFEST CONTROL NUMBER: 0002/022017.
DATE 21/2/2017.

- 1. GENERATOR'S NAME **GIOLEE GLOBAL RESOURCES LTD.**
- 3. GENERATOR'S ADDRESS **18, 2140 STREET, KUMUOMASI, R/STATE.**
- 4. GENERATOR'S CONTACT PHONE: **070315136161**
- 5. TRANSPORTER (COMPANY NAME/PHONE NO): **ANGUSTINE NIG LTD/O**
- 6. DESIGNATED TREATMENT PLANT: **ICREN MRF**
- 7. FACILITY ADDRESS: **ENKKA - IGBOFEHE ROAD, R/STATE.**
- 8. CLASS OF WASTE (DESCRIPTION) **Oilly Debris**
- 9. WASTE QUANTITY (KG): **4, 666kg**

10. TRANSPORTER (COMPANY NAME):

I hereby declare that the content of this consignment described and classified accordingly. I have also made effort to minimize my waste and select the best waste management method

13. WASTE QUANTITY (KG): **NAME: OILY DEBRIS**
AKOH CHIEFISORE

14. SIGNATURE

15. DATE/TIME

...Providing Engineering and Environmental Support



WASTE MANIFEST

0003

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+234 803 341 1451, +234 081 837 40528 www.icrenltd.com

HAZARDOUS/NON HAZARDOUS:

MANIFEST DOC. NO: 2017/08
MANIFEST CONTROL NUMBER: 0003/02 2017
DATE 02/12/2017

1. GENERATOR'S NAME: GIOLEE GLOBAL RESOURCES LTD.

3. GENERATOR'S ADDRESS: 18, UYO STREET, Rumuomasi R/STATE

4. GENERATOR'S CONTACT PHONE: 070315136161

5. TRANSPORTER (COMPANY NAME/PHONE NO): AUGUSTINE NIG LTD

6. DESIGNATED TREATMENT PLANT: ENIKA - IGBOCHÉ ROAD, STATE MRF

7. FACILITY ADDRESS: ICREN MRF - ENIKA IGBOCHÉ

8. CLASS OF WASTE (DESCRIPTION): OILY DEBRIS

9. WASTE QUANTITY (KG): 3,803 Kg.

10. TRANSPORTER (COMPANY NAME):
I hereby declare that the content of this consignment described and classified accordingly. I have also made effort to minimize my waste and select the best waste management method

13. WASTE QUANTITY (KG): NAME: Akoh Chidiobon S.

14. SIGNATURE: *[Signature]*

15. DATE/TIME: 02/12/2017.

...Providing Engineering and Environmental Support

WASTE CONSIGNMENT SHEET

0001

ORIGINATOR

COMPANY **GIOLVEE GLOBAL RESOURCES LTD** NAME **ISAAC**

DEPT. **Operations/Waste Mgt.**

TEL NO. **070315136161**

LOADING POINT **BODO-GOKANA LGA R/STATE.**

TIME **11:06hrs**

DISPATCHER

DRIVER/VEHICLE

WASTE RECEIVER

Company **GIOLVEE GLOBAL RESOURCES LTD**
Name
Sign
Tel No **070315136161**
Time **11:06hrs**
Date **28/11/2017**

Company **AUGUSTIN NIG LTD**
Name **DIKE PRECIOUS**
Sign
Vehicle No **FZE121CR**
Time Started **11:06hrs**
Time Completed **3:35hrs**

Company **ICREN SERVICES LTD**
Name **AKOIT CHIDIBERE**
Sign
Tel No **08138959553**
Time **11:06hrs**
Date **28/11/2017**

TYPE OF WASTE QUANTITY (Kg/Ltrs) TYPE OF WASTE QUANTITY (Kg/Ltrs)

TYPE OF WASTE	QUANTITY (Kg/Ltrs)	TYPE OF WASTE	QUANTITY (Kg/Ltrs)
Absorbents		Oily Rags	
Ash		Toner Cartridge	
Air Filters		Sludge	
Batteries		Sewage	
Cans, Tin		Paper	
Cables		Plastic	
Cartons		Tyres and Tubes	
Construction Debris		Metal Scraps	
Computer Scraps		Others (oil drums)	3,912 Kg
Contaminated Soil			
Asbestos			
Drums			
Bulbs			
Fan Belts			
Food stuff			
Furniture			
Fluorescent Tubes			
Garbage			
Glass			
Grass			

DISPOSAL FACILITY/SITE

Site Name **ICREN MATERIAL RECOVERY FACILITY**
Location **ENEKA-IGBOECHE ROAD, R/STATE.**
Site Officer **CHIDIBERE AKOIT**

SITE FACILITY **REMARK**

Dump Site
TDU / **INCINERATOR**
Contaminated Soil Section
Waste Water Treatment Plant
Scrap Yard
Land Fill
Asbestor Site
Medical Waste Incinerator
Composting Site
Others

Waste received and recorded for further treatment operations.

WASTE CONSIGNMENT SHEET


ORIGINATOR

 COMPANY GIILEE GLOBAL RESOURCES LTD NAME ISAAC

 TEL NO. 070315136161

 LOADING POINT BODO - GOKANA LGA R/STATE

 DEPT. Waste Management

 TIME 10:30am

 0002
 0002

DISPATCHER

 Company GIILEE GLOBAL RESOURCES LTD
 Name
 Sign
 Tel No 070315136161
 Time 10:30am
 Date 02/12/2017
DRIVER/VEHICLE

 Company AUGUSTINE NIG LTD
 Name DIKE PRECIOUS
 Sign
 Vehicle No FZE 121 CR
 Time Started 10:30am
 Time Completed 5:28pm
WASTE RECEIVER

 Company ICREN SERVICES LTD
 Name AKOH CHIDIEBERE
 Sign
 Tel No 05038555553
 Time 10:30am
 Date 2/12/2017

TYPE OF WASTE	QUANTITY (Kg/Ltrs)	TYPE OF WASTE	QUANTITY (Kg/Ltrs)
----------------------	---------------------------	----------------------	---------------------------

- Absorbents
- Ash
- Air Filters
- Batteries
- Cans, Tin
- Cables
- Cartons
- Construction Debris
- Computer Scraps
- Contaminated Soil
- Asbestos
- Drums
- Bulbs
- Fan Belts
- Food stuff
- Furniture
- Fluorescent Tubes
- Garbage
- Glass
- Grass

- Oily Rags
- Toner Cartridge
- Sludge
- Sewage
- Paper
- Plastic
- Tyres and Tubes
- Metal Scraps
- Others OILY RAGS 3,803kg.

DISPOSAL FACILITY/SITE

 Site Name ICREN MATERIAL RECOVERY FACILITY
 Location ENEKA - IGBOLOKE ROAD R/STATE
 Site Officer CHIDIEBERE AKOH

- | | |
|-----------------------------|---------------|
| SITE FACILITY | REMARK |
| Dump Site | |
| <u>TDU/INCINERATOR</u> | |
| Contaminated Soil Section | |
| Waste Water Treatment Plant | |
| Scrap Yard | |
| Land Fill | |
| Asbestor Site | |
| Medical Waste Incinerator | |
| Composting Site | |
| Others | |

**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD
WASTE CONSIGNMENT NOTE (WCN)**

WCN No: 4176

1 ORIGINATOR		
Name:	TAHWILL EDEH	
Ref. Ind.:	UP0/G/NP	
Tel No:	08167653991	
Loading Point:	B3000	
Date:	02/12/2017	
Time:	10:30 AM	
Signature:	<i>[Signature]</i>	
2 DISPATCHER		
Name:	Eziyi Isaac	
Ref. Ind.:	UP0/G/NP	
Tel No:	08057491198	
Loading Point:	B420	
Date:	02/12/2017	
Time:	10:30 AM	
Signature:	<i>[Signature]</i>	
3 TRANSPORTATION		
	LAND	MARINE
Name(Driver/Vessel Captain):	NIKE PRECIOUS	
Company:	VIBRACE 4/ROBTH PASADUAGES	
Tel No:	18027668560	
Vehicle/Vessel No:	A2212ER	
Date:	02-12-2017	
Start Time:	10:30 AM	
End Time:	10:50 AM	
Signature:	<i>[Signature]</i>	
Logistics Base Waste Management Site Supervisor	N/A	
4 WASTE RECEIVER		
Name:	CHIDIEBERE AKOH	
Company:	ICREN SERVICES LTD	
Tel No:	08038050553	
Date:	02/12/2017	
Time:	10:45 AM	
Signature:	<i>[Signature]</i>	

Remarks:
Oily Debris 3,803kg

5	WASTE NAME	QTY (KG/LITRES)
1	Absorbents	
2	Air Filters	
3	Asbestos	
4	Ashes	
5	Batteries (dry & wet)	
6	Cables	
7	Cans and Tins	
8	Cartons	
9	Ceramics	
10	Construction and Demolition Debris	
11	Contaminated Soil (Oil & Chemical)	
12	Electric Bulbs	
13	Fan Belts	
14	Fluorescent Tubes/Bulbs	
15	Food Waste	
16	Furniture Waste	
17	Garbage	
18	Garden Waste	
19	Glass Waste	
20	Grit (Blasting)	
21	Medical Waste	
22	Oil & Fuel Filters	
23	Oily Rags	Oily debris 3,803kg
24	Oily Sludge/Tank Bottoms	
25	Packaging Materials	
26	Paper Waste	
27	Pipping Waste	
28	Plastics (include Drums)	
29	Printer Cartridges and Toner	
30	SBM Cuttings	
31	Scrap Metals (include Drums)	
32	Sewage	
33	Spent / Obsolete Chemicals	
34	Spent Chemicals Containers	
35	Spent Lube Oil	
36	Tyres and Tubes	
37	Water Filters	
38	WBM Cuttings	
39	WBM(Water Based Mud)	
40	Waste Electrical/ Electronic Equipment	
41	Work Over/Completion Fluids	

6. RECEIVER FACILITY	
Name	Location
Composting Plant	
Dumpsite /Landfill	
Incinerator	Igba-Etche Rd, P1
Mercury Recovery Facility	
Recycling Vendor	
Recyclable Waste Collection Centre (RWCC)	
Sewage Treatment Plant	
Thermal Desorption Unit	
Others	

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**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD
WASTE CONSIGNMENT NOTE (WCN)**

WCN No: 4177

1 ORIGINATOR		
Name: JAHSCILL EDGE		
Ref. Ind.: 18016/MP		
Tel No: 08167653991		
Loading Point: Bodo		
Date: 28/11/2017		
Time: 11:00am		
Signature: [Signature]		
2 DISPATCHER		
Name: Eriq Isaac		
Ref. Ind.: 18016/MP		
Tel No: 08033491198		
Loading Point: Bodo		
Date: 28/11/2017		
Time: 11am		
Signature: [Signature]		
3 TRANSPORTATION		
	LAND	MARINE
Name(Driver/Vessel Captain): DKE PRINS		
Company: YACONS GLOBAL RESOURCES		
Tel No: 08033660850		
Vehicle/Vessel No: FZE121CB		
Date: 28/11/2017		
Start Time: 11:00 AM		
End Time: 11:26 AM		
Signature: [Signature]		
Logistics Base Waste Management Site Supervisor		N/A
4 WASTE RECIEVER		
Name: HUBERER AKOH		
Company: JCRAN SERVICES LTD		
Tel No: 08038959553		
Date: 28/11/2017		
Time: 11:50 AM		
Signature: [Signature]		

Remarks: Oily Debris 3,912kg

	5 WASTE NAME	QTY (KG/LITRES)
1	Absorbents	
2	Air Filters	
3	Asbestos	
4	Ashes	
5	Batteries (dry & wet)	
6	Cables	
7	Cans and Tins	
8	Carsons	
9	Ceramics	
10	Construction and Demolition Debris	
11	Contaminated Soil (Oil & Chemical)	
12	Electric Bulbs	
13	Fan Belts	
14	Fluorescent Tubes/Bulbs	
15	Food Waste	
16	Furniture Waste	
17	Garbage	
18	Garden Waste	
19	Glass Waste	
20	Grit (Blasting)	
21	Medical Waste	
22	Oil & Fuel Filters	
23	Oily Rags	Oily Debris 3,912kg
24	Oily Sludge/Tank Bottoms	
25	Packaging Materials	
26	Paper Waste	
27	Pigging Waste	
28	Plastics (include Drums)	
29	Printer Cartridges and Toner	
30	SBM Cuttings	
31	Scrap Metals (include Drums)	
32	Sewage	
33	Spent / Obsolete Chemicals	
34	Spent Chemicals Containers	
35	Spent Lube Oil	
36	Tyres and Tubes	
37	Water Filters	
38	WBM Cuttings	
39	WBM(Water Based Mud)	
40	Waste Electrical/ Electronic Equipment	
41	Work Over/Completion Fluids	

B. RECIEVER FACILITY	
Name	Location
Composting Plant	
Dumpsite/Landfill	
Incinerator	1010 - E-Facility
Mercury Recovery Facility	
Recycling Vendor	
Recyclable Waste Collection Centre (RWCC)	
Sewage Treatment Plant	
Thermal Desorption Unit	
Others	

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**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD
WASTE CONSIGNMENT NOTE (WCN)**

WCN No: 4178

1 ORIGINATOR		
Name: JAMESWILL - F. DEAN		
Ref. Ind.: UPO/G/MP		
Tel No: 08167653991		
Loading Point: BONG		
Date: 02/12/2017		
Time: 2:00pm		
Signature: [Signature]		
2 DISPATCHER		
Name: Frigot Isaac		
Ref. Ind.: UPO/G/MP		
Tel No: 08037491198		
Loading Point: BONG		
Date: 02/12/2017		
Time: 2pm		
Signature: [Signature]		
3 TRANSPORTATION		
	LAND	MARINE
Name(Driver/Vessel Captain): DIKE ADOROUS		
Company: GIOLEE GLOBAL RESOURCES LTD		
Tel No: 08037491198		
Vehicle/Vessel No: 12-12-2017		
Date: 02-12-2017		
Start Time: 2pm		
End Time: 2:10pm		
Signature: [Signature]		
Logistics Base Waste Management Site Supervisor		N/A
4 WASTE RECIEVER		
Name: AKOH CHIDEGERE		
Company: ICREN SERVICES LTD		
Tel No: 08038959553		
Date: 02.12.2017		
Time: 2:10pm		
Signature: [Signature]		
Remarks: Oily Debris 4,666kg		

S	WASTE NAME	QTY (KG/LITRES)
1	Absorbents	
2	Air Filters	
3	Asbestos	
4	Ashes	
5	Batteries (dry & wet)	
6	Cables	
7	Cans and Tins	
8	Cartons	
9	Ceramics	
10	Construction and Demolition Debris	
11	Contaminated Soil (Oil & Chemical)	
12	Electric Bulbs	
13	Fan Belts	
14	Fluorescent Tubes/Bulbs	
15	Food Waste	
16	Furniture Waste	
17	Garbage	
18	Garden Waste	
19	Glass Waste	
20	Grit (Blasting)	
21	Medical Waste	
22	Oil & Fuel Filters	
23	Oily Rags Oily Debris	4,666kg
24	Oily Sludge/Tank Bottoms	
25	Packaging Materials	
26	Paper Waste	
27	Pigging Waste	
28	Plastics (include Drums)	
29	Printer Cartridges and Toner	
30	SBM Cuttings	
31	Scrap Metals (include Drums)	
32	Sewage	
33	Spent / Obsolete Chemicals	
34	Spent Chemicals Containers	
35	Spent Lube Oil	
36	Tyres and Tubes	
37	Water Filters	
38	WBM Cuttings	
39	WBM(Water Based Mud)	
40	Waste Electrical/ Electronic Equipment	
41	Work Over/Completion Fluids	

5. RECIEVER FACILITY	
Name	Location
Composting Plant	
Dumpsite /Landfill	
Incinerator	Agba (to be Rd, PH)
Mercury Recovery Facility	
Recycling Vendor	
Recyclable Waste Collection Centre (RWCC)	
Sewage Treatment Plant	
Thermal Desorption Unit	
Others	

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