Environmental Assessment of Ogoniland
Site Specific Fact Sheets

ALUEJOR- ONNE

This fact sheet is part of a series prepared as part of the Environmental Assessment of Ogoniland by the United Nations Environment Programme (UNEP). It provides the observations and results from one of the individual sites studied in detail, plus the specific risk reduction measures for follow-up action.

This fact sheet should be read in conjunction with the main assessment report available at: www.unep.org/nigeria.

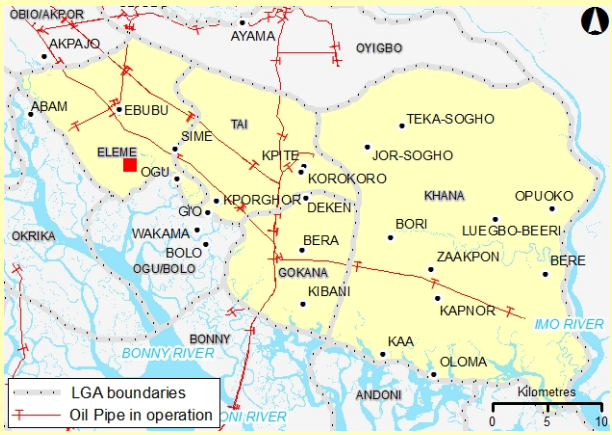
July 2011

Site fact sheet

See Guide to content and terminology on last page.

I - Site Description

Site Name	ALUEJOR- ONNE
Site Number	qc_007-001
LGA	ELEME
Main community	ALUEJOR ONNE
Surrounding communities	ALUEJOR ONNE ONNE
Investigated area (ha)	7.23
Category	SPDC Operating Site
Eastings (WGS 84, Zone 32N)	295621
Northings (WGS 84, Zone 32N)	523498



Recommendations for risk reduction	- Communities should be informed in community meetings about health and safety precautions. - The site should be remodelled to prevent run off from the contaminated area into the downstream swamps. - Additional soil sampling along with trial pits should be done at the contaminated site to delineate the site to be excavated for clean up. - A system of ground water monitoring wells should be installed to act as early warning for communities which are not yet impacted by ground water contamination. - While undertaking the clean up, management of excavation water should be handled properly to ensure that no pollutants are emitted into the environment without control.

II - Oilfield Infrastructure Type

Wells	No
Flowstations	No
Manifolds	No
Flaresites	No
Oil pipeline in operation	No
NNPC crude line	No
NNPC product line	No

III - Spill History

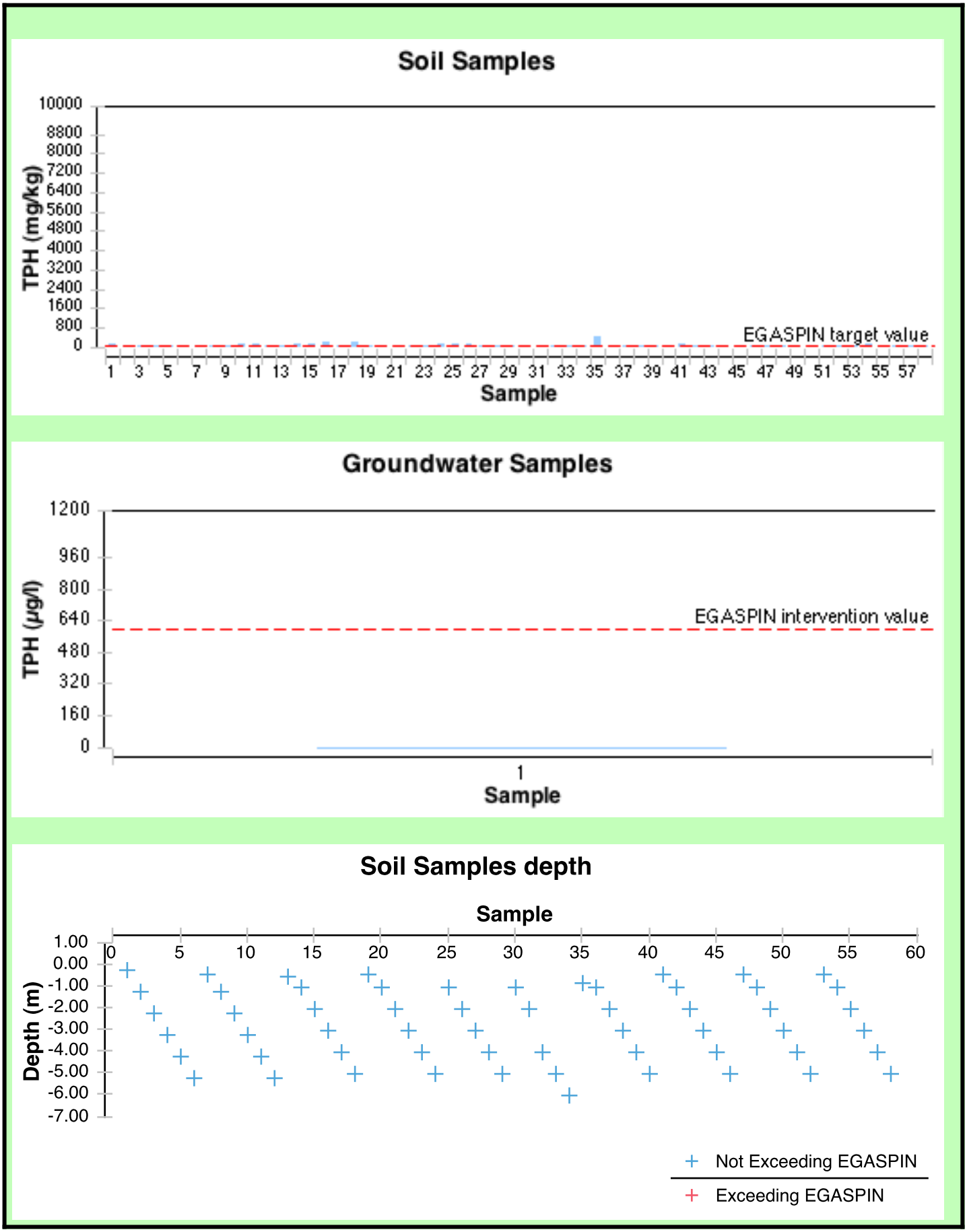
Spills reported by SPDC	No
Spill reported by community	Yes

IV - Data Screening

Assessment criteria

Soil contamination	Nigerian standards EGASPIN (intervention value 5000 mg/kg; target value 50 mg/kg)
Groundwater contamination	Nigerian standards EGASPIN (intervention value 600 µg/l; target value 50 µg/l)
Sediment contamination	Nigerian standards EGASPIN (intervention value 5000 mg/kg; target value 50 mg/kg)
Drinking water contamination	WHO guidelines (benzene: 10 µg/l) Nigerian drinking water standards (mineral oils: 3 µg/l)

Number of soil samples	58
Deepest investigation (m)	6
Maximum soil TPH (mg/kg)	442.000
Number of soil measurements greater than EGASPIN intervention value	0
Deepest sample greater than EGASPIN (m)	0
Number of soil measurements below 1m	50
Number of soil measurements below 1m greater than EGASPIN intervention value	0
Number of ground water samples	3
Maximum groundwater TPH (µg/l)	10
Number of groundwater measurements greater than EGASPIN intervention value	0
Number of community well samples	3
Presence of hydrocarbons in community wells	Not found
Number of CL sediment samples	0
Maximum CL sediment TPH (mg/kg)	Not applicable
Number of CL sediment measurements greater than EGASPIN intervention value	0
Presence of hydrocarbons in sediment above EGASPIN intervention value	Not applicable

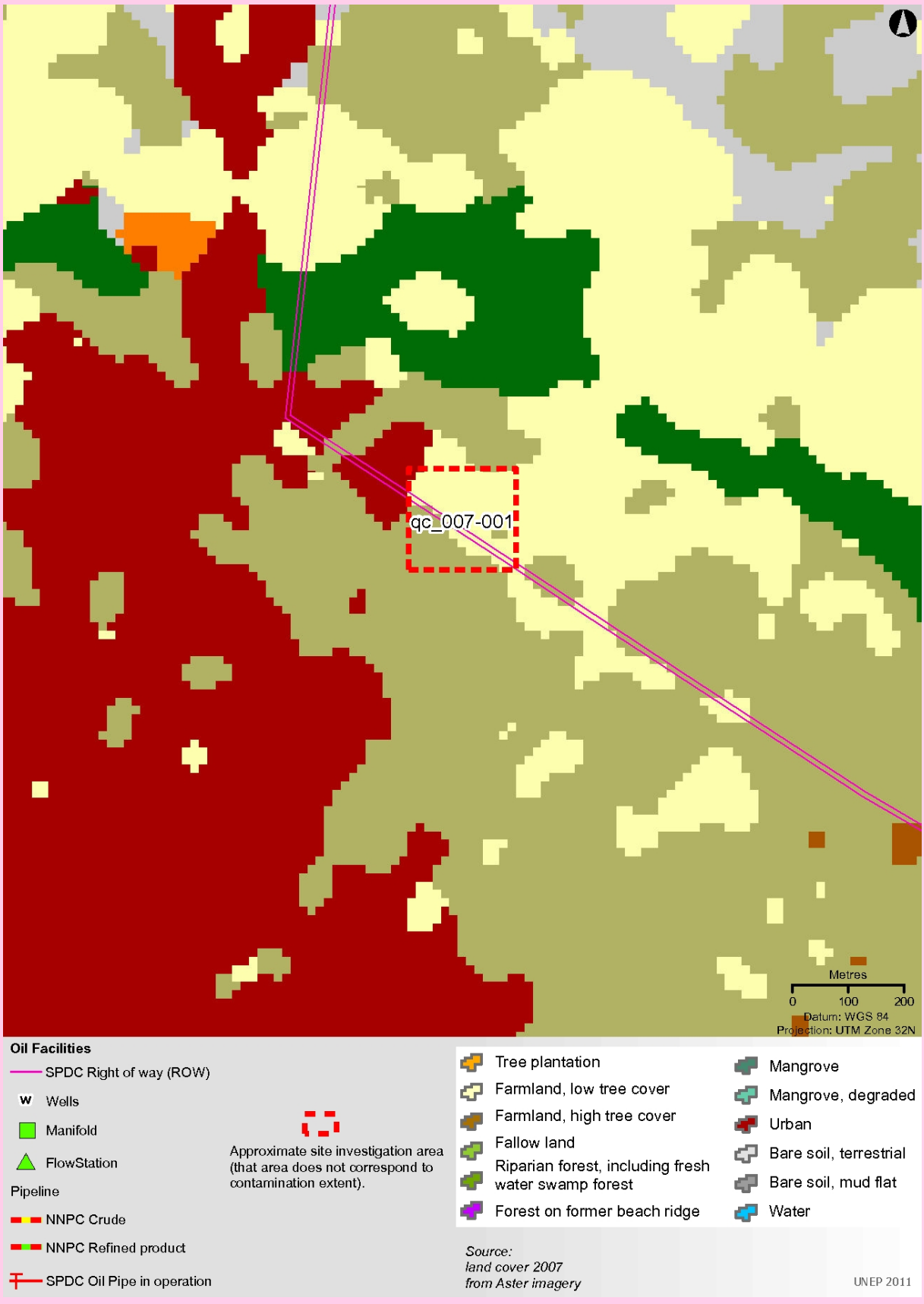

Soil Samples
TPH (mg/kg)
10000
8800
8000
7200
6400
5600
4800
4000
3200
2400
1600
800
0
EGASPIN target value
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57
Sample
Groundwater Samples
TPH (µg/l)
1200
960
800
640
480
320
160
0
EGASPIN intervention value
1
Sample
Soil Samples depth
Sample
Depth (m)
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
0 5 10 15 20 25 30 35 40 45 50 55 60
Not Exceeding EGASPIN
Exceeding EGASPIN

V - Maps

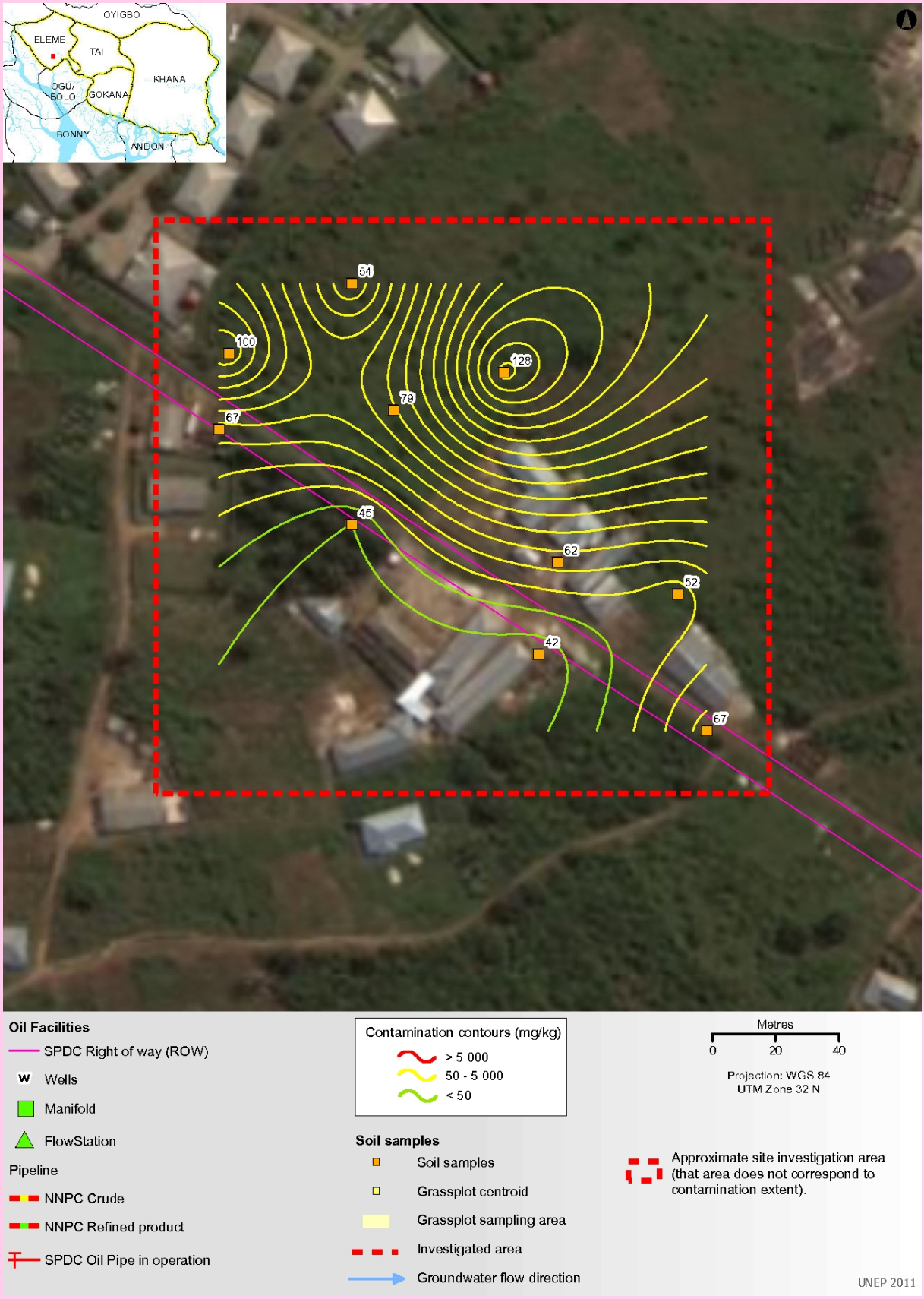
Satellite image of the site

Sampling location map

Landcover 2007



Soil Contamination Map



The values shown next to soil sample points represent the average TPH value for all samples taken from the borehole at that location.

VI - Photos

Ground photograph

VII - Sample List

Soil sample list

Sample Identifier	Total petroleum hydrocarbon (mg/kg)	Depth (m)	Easting	Northing
2622146	157.000	0.20	295586	523492
2622147	40.000	1.20	295586	523492
2622149	32.300	2.20	295586	523492
2622150	52.600	3.20	295586	523492
2622151	24.600	4.20	295586	523492
2622152	52.500	5.20	295586	523492
2622154	53.500	0.40	295599	523528
2622155	30.000	1.20	295599	523528
2622156	43.400	2.20	295599	523528
2622157	123.000	3.20	295599	523528
2622158	166.000	4.20	295599	523528
2622159	33.500	5.20	295599	523528
2622160	31.300	0.50	295634	523540
2622165	146.000	1.00	295634	523540
2622166	149.000	2.00	295634	523540
2622167	177.000	3.00	295634	523540
2622168	36.900	4.00	295634	523540
2622169	187.000	5.00	295634	523540
2622171	40.100	0.40	295586	523568
2622172	75.700	1.00	295586	523568
2622174	30.800	2.00	295586	523568
2622176	26.300	3.00	295586	523568
2622177	38.900	4.00	295586	523568
2622178	115.000	5.00	295586	523568
2622179	111.000	1.00	295698	523427
2622180	109.000	2.00	295698	523427
2622181	53.700	3.00	295698	523427
2622183	41.600	4.00	295698	523427
2622184	22.100	5.00	295698	523427
2622186	54.100	1.00	295689	523470
2622187	74.400	2.00	295689	523470
2622188	77.700	4.00	295689	523470
2622189	25.700	5.00	295689	523470
2622190	28.400	6.00	295689	523470
2622191	442.000	0.80	295547	523546
2622192	25.600	1.00	295547	523546
2622193	40.000	2.00	295547	523546
2622195	41.200	3.00	295547	523546
2622196	31.000	4.00	295547	523546
2622197	29.000	5.00	295547	523546

Sample Identifier	Total petroleum hydrocarbon (mg/kg)	Depth (m)	Easting	Northing
2622198	95.900	0.40	295544	523522
2622199	51.900	1.00	295544	523522
2622200	85.200	2.00	295544	523522
2622203	71.800	3.00	295544	523522
2622204	38.300	4.00	295544	523522
2622206	71.100	5.00	295544	523522
2622214	48.100	0.40	295645	523451
2622215	50.600	1.00	295645	523451
2622217	45.100	2.00	295645	523451
2622218	40.900	3.00	295645	523451
2622219	28.400	4.00	295645	523451
2622220	44.400	5.00	295645	523451
2622221	89.400	0.40	295651	523480
2622222	129.000	1.00	295651	523480
2622224	55.700	2.00	295651	523480
2622225	54.200	3.00	295651	523480
2622226	44.200	4.00	295651	523480
2622227	43.400	5.00	295651	523480

Groundwater sample list

Sample Identifier	Total petroleum hydrocarbon (µg/l)	Easting	Northing
2622234	not analyzed for TPH	295630	523466
2622237	BDL	295587	523496
2622245	not analyzed for TPH	295634	523540

Community well sample list

Sample Identifier	Total petroleum hydrocarbon (µg/l)	Easting	Northing
2622240	BDL	295724	523535
2622242	BDL	295775	523362
2622243	BDL	295621	523396

Guide to content

The Site Fact Sheets present more detailed data from UNEP's environmental assessment of Ogoniland on a site-by-site basis. Note that all data is based on the analysis of samples taken during the fieldwork period. The period of most intensive fieldwork ran from April to December 2010. The final sampling visit was completed in January 2011.

Here is a guide to the terms and abbreviations used. Please refer to the Environmental Assessment of Ogoniland report for details of EGASPIN target and intervention values.

Terminology

Site number	Reference number allocated by UNEP to identify a study site
Area (ha)	Estimated surface area (in hectares) of a given study site
Well	Oil well, also referred to as a production well
Fugro well	New well installed by Fugro at UNEP's request to enable scientific sampling and monitoring
Community well	Wells belonging to communities which are used to collect water for drinking and sanitation needs
Contamination contour	Maps that display the geographical distribution of oil contamination concentrations in an analyzed receptor
Flare site	Indicates whether the burning of unwanted gas through a pipe (or flare) takes place at a given site
Flow station	Separation facilities (also called gathering centres) which separate natural gas and water from crude oil extracted from production wells
Incident number	Numbers as supplied from the SPDC oil spills database
Manifold	An arrangement of piping or valves designed to control, distribute and often monitor fluid flow

Abbreviations

BDL	Below Detection Limit
CL	Contaminated Land
EGASPIN	Environmental Guidelines and Standards for Petroleum Industries in Nigeria
GW	groundwater
LGA	Local Government Area
mbgs	metre/s below ground surface
NNPC	Nigerian National Petroleum Corporation
SPDC	Shell Petroleum Development Company of Nigeria
TPH	total petroleum hydrocarbons
UNEP	United Nations Environment Programme

Explanatory Note

1. The recommendations given are for initial risk reduction. Final clean up would need significant additional site specific engineering as well as consultation work.
2. Spill reported by SPDC has the date format YYYYMMDD
3. Assessment is done based on a screening of the measured value against a Nigerian or international standard
4. In the soil sample maps, the highest value has been cut-off to 2 times the intervention value. This was done to visually express the excedences above intervention values. Actual values are given in the sample tables.
5. The values of soil contamination listed in the Soil Contamination Maps are average values of all samples taken at that sampling location