

# JOINT INVESTIGATION REPORT

INCIDENT NO: 1747111 JIV report S/N: Nº 0000320

(Note: As practicable as possible the JIV report is to be signed in the field by all the participating parties)

## A. GENERAL INFORMATION:

1. Spill incident Number: 1747111 2. Type of incident\* OIL SPILL  
3. Name of Location 48" FORCADOS TERMINAL EXPORT PIPELINE  
4. Name of nearest community OGULAGHA KINGDOM 5. State: DELTA 6. LGA BURUTU  
7. Type of Production facility/Installation OIL PIPELINE  
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED/SWAMP WEST

## B. INCIDENT INFORMATION:

9. Details of incident  
a. Date of incident: 9<sup>TH</sup> NOVEMBER, 2016  
b. Start date/time of investigation: 15<sup>TH</sup> NOVEMBER, 2016 AT 0835HRS  
c. Investigation End date: 2<sup>ND</sup> DECEMBER, 2016 Actual investigation duration, days: 7 DAYS  
d. Description of spill point environment

- |   |                                     |  |
|---|-------------------------------------|--|
| <input type="checkbox"/> Firm soil                | <input type="checkbox"/> Loose soil | <input type="checkbox"/> Recently excavated area |
| <input checked="" type="checkbox"/> Under water   | <input type="checkbox"/> Swampy     | <input type="checkbox"/> Exposed pipe surface    |
| <input type="checkbox"/> Well Platform (on Water) | <input type="checkbox"/> Drill Rig  |  |

Additional observations around the spill point: INCIDENT CAUSE WAS CONFIRMED AS THIRD PARTY INTERFERENCE, ESTABLISHED DURING MULTIPLE DIVING OPERATIONS TO THE LEAK POINT. A MAJOR LONGITUDINAL CONCAVE DEPRESSION AND PIPE BREACH (EXTERNAL IMPACT) WAS OBSERVED BY THE DIVERS. A PIECE OF CONCRETE COATING AND ELECTRICAL CABLE WAS RECOVERED FROM THE SEA BED

### e. Description of leak point (tick as applicable):

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Drilled hole                               | <input type="checkbox"/> Hack saw cut            | <input checked="" type="checkbox"/> Tear (_____).                          |
| <input type="checkbox"/> Complete Rupture                           | <input checked="" type="checkbox"/> Inward dent. | <input type="checkbox"/> Well head tampering                               |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve       | <input type="checkbox"/> Failed Clamp.           | <input type="checkbox"/> Missing Pipeline/Flowline                         |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point. | <input type="checkbox"/> Saver-pit over flow     | <input type="checkbox"/> Third party tampering with Clamp                  |
| <input type="checkbox"/> Third party tampering with valve setting   | <input type="checkbox"/> Bulging Outward         | <input type="checkbox"/> Third party tampering with flange.                |
| <input type="checkbox"/> Flare System/Bund wall failure             | <input type="checkbox"/> Cold vent               | <input type="checkbox"/> Surge vessel overflow.                            |
| <input type="checkbox"/> Valve Failure                              | <input type="checkbox"/> Relief valve failure    | <input type="checkbox"/> Accidental 3 <sup>rd</sup> party equipment impact |
| <input type="checkbox"/> Others(specify) _____                      |  |  |

### f. Incident caused by:

- Third party interference (Sabotage  crude theft : Line theft : Accidental 3<sup>rd</sup> party damage   
 Operational  Others (including Mystery spills) \_\_\_\_\_

\* This can be: a) Oil Spill b) Drilling fluid/Chemical c) Siltation d) construction e) Encroachment f) Fire.

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g. Spill point coordinates

h. Measuring unit

(MINNA WEST BELT EPSG:26391)

Northing:	Easting:
140959.1 mN	319479.3 mE
/	/
/	/

## C. RISK ASSESSMENT

10. Type of environment:

- Land     
  Swamp     
  Water     
  Seasonal swamp     
  Shoreline/Waterfront

i. Type of environment to which oil has spread:

- Land     
  Swamp     
  Water     
  River (identify) OPEN SEA

ii. Weather condition

- Rain     
  Sunny     
  Dry     
  Wet     
  Windy     
  Hot     
  Cool

11. Distance from the nearest sensitive habitat

- |  |  |               |            |
|--|--|---------------|------------|
| <input type="checkbox"/> Government reserved and designated protected area |  |               | [      .m] |
| <input type="checkbox"/> Drinking water source                             |  | [    ○    .m] |            |
| <input type="checkbox"/> Built up area                                     |  | [      .m]    |            |
| <input type="checkbox"/> Farmlands   |  | [      .m]    |            |
| <input type="checkbox"/> Fish Farm/Pond                                    |  | [      .m]    |            |
| <input type="checkbox"/> Fishing net                                       |  | [      .m]    |            |
| <input type="checkbox"/> Others (specify).                                 |  | [      .m]    |            |

12. Containment measures put in place:

- Booms     
  Trench     
  Dyke     
  Natural depression     
  Pit     
  None
- Others: \_\_\_\_\_

13. Any pictures or video coverage?

[✓] [N]

14. Further response/repair initiated as at the time of JIV?

[✓] [N]

If yes to item 14, give brief description:

CRUDE OIL RECOVERY IS ON-GOING

15. Was there any disruption to the investigation?

[Y] [✓]

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If yes to item 15 give brief description: NOT APPLICABLE

**D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL**

**16. Structures / Properties**

S/N	Type of Structures	Description	Size	Number	Comments
NONE WITHIN AREA OF IMPACT					

**17. Crops/Economic Trees**

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
NONE WITHIN AREA OF IMPACT						

**18. Fishing Nets/Fish Ponds**

S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

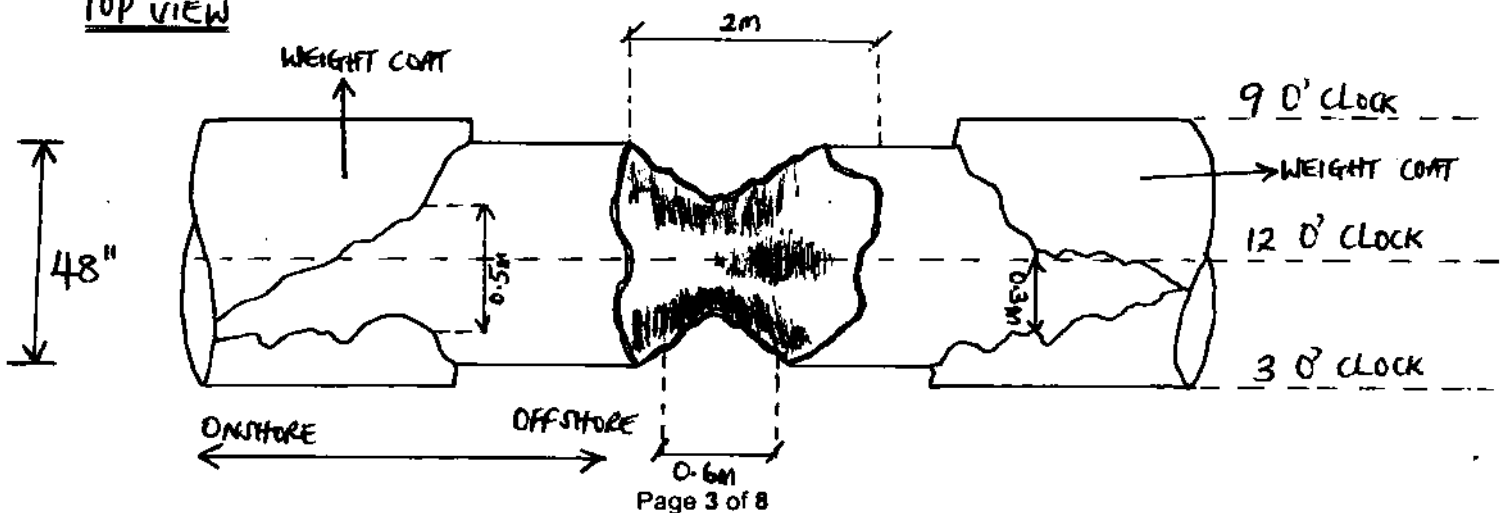
**19. Others (Specify) i.e. Animal Traps**

S/N	Others	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

**E. GRAPHIC DESCRIPTION OF LEAK POINT** (while detail report of the leak point should be contained in the leak report, overview sketch of the site should be added as an appendix 1)

SECTION OF 48" FORCADOS TERMINAL EXPORT PIPELINE, SHOWING: POSITION OF MAJOR LONGITUDINAL CONCAVE DEPRESSION AND PIPE BREACH - EXTERNAL IMPACT.

TOP VIEW





# APPENDIX 1

POLY_ID	AREA_SQKM	X_Minna_West_Belt	Y_Minna_West_Belt	POINT_ORDER
1	2.500568	317084.33067	137565.83732	0.0
1	2.500568	316981.81256	137290.95486	1.0
1	2.500568	317087.88560	137106.05945	2.0
1	2.500568	317009.89617	136790.80298	3.0
1	2.500568	316865.90006	136529.05125	4.0
1	2.500568	316862.15649	136515.97697	5.0
1	2.500568	316632.30168	136254.67592	6.0
1	2.500568	316382.64293	136112.39009	7.0
1	2.500568	316051.66495	136059.46496	8.0
1	2.500568	315779.24276	136240.52977	9.0
1	2.500568	315675.22763	136324.90361	10.0
1	2.500568	315457.16576	136510.82423	11.0
1	2.500568	315234.54337	136559.17653	12.0
1	2.500568	315200.61304	136886.54483	13.0
1	2.500568	315263.95030	137116.33873	14.0
1	2.500568	315357.21674	137463.60856	15.0
1	2.500568	315459.68030	137778.69503	16.0
1	2.500568	315769.97324	137871.43062	17.0
1	2.500568	315760.03312	137549.00441	18.0
1	2.500568	315805.66919	137311.91894	19.0
1	2.500568	315810.94086	137307.49795	20.0
1	2.500568	315944.70031	137279.76872	21.0
1	2.500568	316055.02802	137153.11107	22.0
1	2.500568	316155.27072	137361.40155	23.0
1	2.500568	316477.03824	137578.47605	24.0
1	2.500568	316571.26551	137516.31143	25.0
1	2.500568	316857.13247	137664.27865	26.0
1	2.500568	317082.58702	137791.19432	27.0
1	2.500568	317321.42780	138138.99670	28.0
1	2.500568	317449.28357	138342.04673	29.0
1	2.500568	317571.33942	138643.26289	30.0
1	2.500568	317591.70881	138881.64495	31.0
1	2.500568	317663.86321	139063.29573	32.0
1	2.500568	317753.42095	138906.95794	33.0
1	2.500568	317764.44928	138630.22030	34.0
1	2.500568	317703.87082	138388.42503	35.0
1	2.500568	317611.37612	138182.88875	36.0
1	2.500568	317376.95633	137856.20721	37.0
2	13.042860	306060.36796	141410.85706	0.0
2	13.042860	306145.84507	141331.04124	1.0
2	13.042860	306217.80301	141331.14403	2.0
2	13.042860	306284.21315	141252.08241	3.0
2	13.042860	306370.76400	141212.93383	4.0
2	13.042860	306435.97465	141135.01692	5.0
2	13.042860	306521.54983	141096.42667	6.0
2	13.042860	306606.71960	141058.01663	7.0
2	13.042860	306691.48477	141019.77086	8.0
2	13.042860	306736.85662	140943.66792	9.0
2	13.042860	306820.72279	140905.97645	10.0

2	13.042860	306886.70779	140868.40994	11.0
2	13.042860	306948.17233	140793.87444	12.0
2	13.042860	307009.05326	140719.93451	13.0
2	13.042860	307047.69797	140610.14466	14.0
2	13.042860	307102.93303	140502.08129	15.0
2	13.042860	307144.99632	140430.80036	16.0
2	13.042860	307215.82607	140325.10615	17.0
2	13.042860	307256.90851	140255.42184	18.0
2	13.042860	307309.49141	140152.04623	19.0
2	13.042860	307377.96891	140050.08198	20.0
2	13.042860	307412.57047	139949.39517	21.0
2	13.042860	307358.20488	139915.98926	22.0
2	13.042860	307289.86864	139784.13499	23.0
2	13.042860	307181.52505	139590.59538	24.0
2	13.042860	307177.12287	139558.85260	25.0
2	13.042860	307127.85553	139433.16681	26.0
2	13.042860	307020.09598	139218.24925	27.0
2	13.042860	306988.82274	139098.31059	28.0
2	13.042860	306927.19098	138980.20920	29.0
2	13.042860	306900.81437	138893.01903	30.0
2	13.042860	306852.50848	138750.05503	31.0
2	13.042860	306827.00986	138665.66713	32.0
2	13.042860	306805.17380	138609.96583	33.0
2	13.042860	306722.69913	138418.46004	34.0
2	13.042860	306663.08198	138284.89865	35.0
2	13.042860	306627.87965	138232.23364	36.0
2	13.042860	306601.78667	138128.15968	37.0
2	13.042860	306561.70527	138025.65465	38.0
2	13.042860	306514.32273	137850.04801	39.0
2	13.042860	306487.26924	137727.45400	40.0
2	13.042860	306446.78721	137607.12335	41.0
2	13.042860	306407.05264	137489.01699	42.0
2	13.042860	306354.36718	137373.05005	43.0
2	13.042860	306286.99110	137236.64967	44.0
2	13.042860	306255.86912	137191.82480	45.0
2	13.042860	306207.67817	137103.15986	46.0
2	13.042860	306145.08987	136994.12738	47.0
2	13.042860	306098.44698	136908.28769	48.0
2	13.042860	306039.37689	136823.62947	49.0
2	13.042860	305956.57984	136760.85356	50.0
2	13.042860	305860.43984	136678.18238	51.0
2	13.042860	305806.42795	136637.26474	52.0
2	13.042860	305737.87861	136556.32373	53.0
2	13.042860	305683.89765	136496.33655	54.0
2	13.042860	305642.26174	136417.34077	55.0
2	13.042860	305600.40032	136320.09826	56.0
2	13.042860	305546.12020	136205.53385	57.0
2	13.042860	305505.19444	136093.24649	58.0
2	13.042860	305464.52678	135965.00104	59.0
2	13.042860	305426.66104	135910.91614	60.0

2	13.042860	305376.34888	135821.93415	61.0
2	13.042860	305339.05919	135751.78969	62.0
2	13.042860	305302.50928	135699.74618	63.0
2	13.042860	305266.30505	135648.19463	64.0
2	13.042860	305230.28860	135580.22749	65.0
2	13.042860	305206.37421	135513.12176	66.0
2	13.042860	305182.67844	135430.41344	67.0
2	13.042860	305147.87111	135348.95814	68.0
2	13.042860	305136.37955	135300.69266	69.0
2	13.042860	305102.39033	135205.46239	70.0
2	13.042860	305080.15068	135127.42046	71.0
2	13.042860	305047.47285	135004.96415	72.0
2	13.042860	305025.90561	134944.81170	73.0
2	13.042860	304982.43022	134900.12678	74.0
2	13.042860	304940.18019	134811.98169	75.0
2	13.042860	304897.64425	134768.45709	76.0
2	13.042860	304823.97771	134696.74959	77.0
2	13.042860	304781.92520	134668.34049	78.0
2	13.042860	304760.45643	134668.31430	79.0
2	13.042860	304717.51866	134668.26238	80.0
2	13.042860	304663.84662	134668.19691	81.0
2	13.042860	304588.70538	134668.10557	82.0
2	13.042860	304556.50179	134668.06687	83.0
2	13.042860	304492.09505	134667.98820	84.0
2	13.042860	304394.42594	134682.02682	85.0
2	13.042860	304339.53716	134696.16142	86.0
2	13.042860	304318.00623	134696.13552	87.0
2	13.042860	304272.46803	134724.61644	88.0
2	13.042860	304203.66718	134767.63676	89.0
2	13.042860	304146.59148	134796.51337	90.0
2	13.042860	304110.99699	134825.58165	91.0
2	13.042860	304051.73680	134869.49786	92.0
2	13.042860	304006.26869	134884.19475	93.0
2	13.042860	303946.19663	134928.62829	94.0
2	13.042860	303865.32833	134958.42571	95.0
2	13.042860	303817.23527	134988.43587	96.0
2	13.042860	303757.73883	135018.61235	97.0
2	13.042860	303673.41113	135064.22135	98.0
2	13.042860	303648.86216	135079.51857	99.0
2	13.042860	303563.53770	135125.67559	100.0
2	13.042860	303502.46995	135156.67511	101.0
2	13.042860	303468.66378	135156.63800	102.0
2	13.042860	303443.58368	135172.21412	103.0
2	13.042860	303359.23573	135203.47013	104.0
2	13.042860	303302.63584	135203.40916	105.0
2	13.042860	303220.50412	135219.06505	106.0
2	13.042860	303149.47698	135234.78142	107.0
2	13.042860	303115.41128	135234.75039	108.0
2	13.042860	303032.73765	135250.51893	109.0
2	13.042860	302946.48531	135282.26910	110.0

2	13.042860	302882.58918	135314.23485	111.0
2	13.042860	302841.25673	135346.41658	112.0
2	13.042860	302811.18241	135378.80653	113.0
2	13.042860	302750.47550	135444.18779	114.0
2	13.042860	302696.87588	135527.08191	115.0
2	13.042860	302646.34121	135594.32932	116.0
2	13.042860	302591.15430	135679.59179	117.0
2	13.042860	302555.24138	135731.39802	118.0
2	13.042860	302486.62978	135818.82859	119.0
2	13.042860	302437.69454	135871.97289	120.0
2	13.042860	302440.12265	135961.76034	121.0
2	13.042860	302472.24697	135979.92717	122.0
2	13.042860	302533.08960	135979.97706	123.0
2	13.042860	302573.75855	135961.87053	124.0
2	13.042860	302646.60460	135907.88858	125.0
2	13.042860	302714.86384	135872.20272	126.0
2	13.042860	302774.45712	135819.06916	127.0
2	13.042860	302833.47170	135766.46531	128.0
2	13.042860	302860.96386	135749.04452	129.0
2	13.042860	302934.53952	135679.88215	130.0
2	13.042860	302995.42335	135611.58115	131.0
2	13.042860	303043.85364	135544.12338	132.0
2	13.042860	303096.98253	135510.73472	133.0
2	13.042860	303169.97167	135494.16404	134.0
2	13.042860	303242.73046	135477.65444	135.0
2	13.042860	303283.32713	135444.67735	136.0
2	13.042860	303329.65810	135444.72663	137.0
2	13.042860	303399.15396	135444.80117	138.0
2	13.042860	303468.64950	135444.87567	139.0
2	13.042860	303572.89210	135444.98672	140.0
2	13.042860	303642.38644	135445.06128	141.0
2	13.042860	303665.55155	135445.08581	142.0
2	13.042860	303711.88090	135445.13580	143.0
2	13.042860	303781.37470	135445.21005	144.0
2	13.042860	303839.28589	135445.27224	145.0
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2	13.042860	303989.85405	135445.43323	147.0
2	13.042860	304013.01796	135445.45843	148.0
2	13.042860	304080.88291	135462.01495	149.0
2	13.042860	304138.88247	135462.07693	150.0
2	13.042860	304173.68220	135462.11410	151.0
2	13.042860	304241.90098	135478.72245	152.0
2	13.042860	304297.39877	135511.99462	153.0
2	13.042860	304327.34443	135579.10501	154.0
2	13.042860	304334.06644	135647.03375	155.0
2	13.042860	304270.98554	135698.47884	156.0
2	13.042860	304222.11502	135715.70454	157.0
2	13.042860	304173.08920	135732.98472	158.0
2	13.042860	304123.90694	135750.31994	159.0
2	13.042860	304074.56782	135767.71098	160.0



2	13.042860	304001.16719	135785.13228	161.0
2	13.042860	303951.47333	135802.63392	162.0
2	13.042860	303879.64671	135802.55813	163.0
2	13.042860	303829.68142	135820.10203	164.0
2	13.042860	303779.55193	135837.72009	165.0
2	13.042860	303729.26069	135855.39562	166.0
2	13.042860	303654.71114	135873.10110	167.0
2	13.042860	303589.50039	135908.77157	168.0
2	13.042860	303511.74132	135944.65687	169.0
2	13.042860	303457.80284	135980.81895	170.0
2	13.042860	303366.89811	136017.16833	171.0
2	13.042860	303287.64513	136053.76278	172.0
2	13.042860	303207.87172	136090.59770	173.0
2	13.042860	303136.61049	136146.36102	174.0
2	13.042860	303080.44594	136183.85069	175.0
2	13.042860	303029.35141	136259.62973	176.0
2	13.042860	302993.71428	136317.13379	177.0
2	13.042860	302950.36960	136414.28472	178.0
2	13.042860	302889.71226	136533.06327	179.0
2	13.042860	302839.66118	136593.35679	180.0
2	13.042860	302759.19441	136674.71095	181.0
2	13.042860	302694.86632	136736.45555	182.0
2	13.042860	302664.73863	136819.82893	183.0
2	13.042860	302682.33665	136861.98186	184.0
2	13.042860	302721.72160	136862.01357	185.0
2	13.042860	302787.36207	136862.06880	186.0
2	13.042860	302853.00221	136862.12277	187.0
2	13.042860	302984.28421	136862.21895	188.0
2	13.042860	303148.78289	136820.19144	189.0
2	13.042860	303204.47825	136799.28244	190.0
2	13.042860	303246.94404	136778.43435	191.0
2	13.042860	303305.45240	136736.93195	192.0
2	13.042860	303392.45244	136675.23130	193.0
2	13.042860	303449.95261	136634.45205	194.0
2	13.042860	303504.26552	136614.19658	195.0
2	13.042860	303581.39806	136614.28102	196.0
2	13.042860	303632.81982	136614.33688	197.0
2	13.042860	303735.66271	136614.44848	198.0
2	13.042860	303815.05824	136594.28985	199.0
2	13.042860	303853.55770	136594.33254	200.0
2	13.042860	303930.55685	136594.41501	201.0
2	13.042860	303969.05666	136594.45445	202.0
2	13.042860	304020.38948	136594.50707	203.0
2	13.042860	304110.22156	136594.59925	204.0
2	13.042860	304187.21976	136594.67869	205.0
2	13.042860	304238.55194	136594.73136	206.0
2	13.042860	304289.88546	136594.76893	207.0
2	13.042860	304341.21586	136594.83129	208.0
2	13.042860	304378.42017	136615.12006	209.0
2	13.042860	304428.62976	136635.48661	210.0

2	13.042860	304502.63607	136696.95260	211.0
2	13.042860	304564.40423	136759.03349	212.0
2	13.042860	304627.70303	136800.80777	213.0
2	13.042860	304663.59773	136885.12682	214.0
2	13.042860	304658.59877	137013.77904	215.0
2	13.042860	304616.90185	137057.22640	216.0
2	13.042860	304548.13992	137100.95146	217.0
2	13.042860	304478.88263	137145.00344	218.0
2	13.042860	304368.68809	137189.31625	219.0
2	13.042860	304286.28099	137211.58191	220.0
2	13.042860	304215.44562	137256.44522	221.0
2	13.042860	304103.28612	137301.59221	222.0
2	13.042860	304033.27182	137324.27499	223.0
2	13.042860	303976.65408	137347.05529	224.0
2	13.042860	303903.90422	137392.90884	225.0
2	13.042860	303803.11242	137439.07181	226.0
2	13.042860	303729.18199	137485.61477	227.0
2	13.042860	303685.09590	137509.01154	228.0
2	13.042860	303576.77624	137603.52623	229.0
2	13.042860	303469.95201	137675.30926	230.0
2	13.042860	303435.57080	137723.64989	231.0
2	13.042860	303348.47442	137846.11093	232.0
2	13.042860	303291.90395	137945.78005	233.0
2	13.042860	303248.87755	138047.00148	234.0
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2	13.042860	303131.51751	138254.17365	236.0
2	13.042860	303149.15430	138333.59890	237.0
2	13.042860	303185.67205	138387.10412	238.0
2	13.042860	303274.39556	138387.18851	239.0
2	13.042860	303363.11808	138387.27433	240.0
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2	13.042860	303873.63515	137996.78370	246.0
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2	13.042860	304070.52207	137871.59040	249.0
2	13.042860	304129.32596	137846.86229	250.0
2	13.042860	304187.90601	137822.22829	251.0
2	13.042860	304232.12180	137797.67283	252.0
2	13.042860	304320.05343	137748.83365	253.0
2	13.042860	304391.89689	137724.58456	254.0
2	13.042860	304464.72275	137676.29909	255.0
2	13.042860	304506.75289	137676.35002	256.0
2	13.042860	304577.84275	137652.38446	257.0
2	13.042860	304650.46710	137580.85629	258.0
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2	13.042860	304778.90865	137463.42936	260.0

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2	13.042860	304933.76262	137257.29060	263.0
2	13.042860	304987.97468	137257.35567	264.0
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2	13.042860	305177.63475	137235.07467	267.0
2	13.042860	305245.27685	137235.15639	268.0
2	13.042860	305299.69237	137257.73432	269.0
2	13.042860	305381.91302	137303.10459	270.0
2	13.042860	305438.54632	137394.69715	271.0
2	13.042860	305535.93698	137441.09079	272.0
2	13.042860	305592.63761	137487.77474	273.0
2	13.042860	305648.80339	137511.29652	274.0
2	13.042860	305731.77727	137511.42973	275.0
2	13.042860	305788.30545	137535.03903	276.0
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2	13.042860	305903.42577	137606.30474	278.0
2	13.042860	305948.26057	137654.20788	279.0
2	13.042860	306023.17658	137726.74853	280.0
2	13.042860	306084.79975	137800.09019	281.0
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2	13.042860	305563.66845	138309.68369	291.0
2	13.042860	305504.14591	138283.14181	292.0
2	13.042860	305430.79911	138283.05041	293.0
2	13.042860	305342.78229	138282.93131	294.0
2	13.042860	305269.43507	138282.83290	295.0
2	13.042860	305196.08799	138282.72296	296.0
2	13.042860	305122.72112	138309.08841	297.0
2	13.042860	305063.79256	138335.60181	298.0
2	13.042860	305034.14402	138362.24747	299.0
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2	13.042860	304635.75585	138775.24676	305.0
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2	13.042860	304751.19770	139006.38655	308.0
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2	13.042860	305587.83615	139066.41403	320.0
2	13.042860	305680.97157	139066.52623	321.0
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2	13.042860	305803.76162	139037.18191	323.0
2	13.042860	305865.72521	139037.27706	324.0
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2	13.042860	306008.77500	139096.68526	326.0
2	13.042860	306090.53928	139156.49588	327.0
2	13.042860	306139.50517	139186.60055	328.0
2	13.042860	306051.35687	139277.31263	329.0
2	13.042860	305990.15496	139307.75572	330.0
2	13.042860	305912.87544	139338.30451	331.0
2	13.042860	305838.26351	139431.00923	332.0
2	13.042860	305745.35727	139493.43263	333.0
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2	13.042860	305494.19273	139683.93464	335.0
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2	13.042860	305088.53537	139945.61487	339.0
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2	13.042860	304751.34216	140251.46117	343.0
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2	13.042860	304624.12805	141093.60614	348.0
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2	13.042860	305272.08790	142298.37255	358.0
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6	83.400717	314922.54112	148426.52307	0.0
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6	83.400717	314670.32550	148365.11766	5.0
6	83.400717	314628.28919	148354.88303	6.0
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6	83.400717	314533.70729	148331.85559	8.0
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6	83.400717	314317.69823	148330.10952	12.0
6	83.400717	314260.90756	148329.02930	13.0
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6	83.400717	314402.80685	148414.71411	19.0
6	83.400717	314470.20285	148418.31810	20.0
6	83.400717	314516.41989	148416.77926	21.0
6	83.400717	314569.17503	148429.62320	22.0
6	83.400717	314621.93005	148442.46697	23.0
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6	83.400717	314716.88891	148465.58580	25.0
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6	83.400717	314811.84673	148488.70454	27.0
6	83.400717	314864.60090	148501.54829	28.0
6	83.400717	314896.25327	148509.25445	29.0
6	83.400717	314938.45641	148519.52939	30.0
6	83.400717	314991.21011	148532.37280	31.0
6	83.400717	315029.71873	148554.53907	32.0
6	83.400717	315071.94532	148564.81988	33.0
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6	83.400717	315129.09408	148489.50162	37.0
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6	83.400717	315048.64738	148457.22576	39.0
6	83.400717	315006.61204	148446.99154	40.0
6	83.400717	314964.57670	148436.75757	41.0
6	83.400717	318932.32931	152279.73010	0.0

6	83.400717	319070.51852	152245.43829	1.0
6	83.400717	319208.69858	152245.46767	2.0
6	83.400717	319346.89560	152176.85645	3.0
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6	83.400717	319623.33816	151833.71371	6.0
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6	83.400717	320003.35148	151730.83607	9.0
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6	83.400717	320279.68999	151799.53453	11.0
6	83.400717	320417.86723	151799.56414	12.0
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6	83.400717	320728.76519	151799.63098	14.0
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6	83.400717	321640.18297	152346.28910	29.0
6	83.400717	321702.68134	152346.37091	30.0
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6	83.400717	321827.52201	152393.58710	32.0
6	83.400717	321905.60256	152409.37594	33.0
6	83.400717	321968.05889	152425.14533	34.0
6	83.400717	322030.56721	152425.22703	35.0
6	83.400717	322093.07521	152425.30889	36.0
6	83.400717	322171.21041	152425.41120	37.0
6	83.400717	322233.71820	152425.49319	38.0
6	83.400717	322296.22633	152425.57481	39.0
6	83.400717	322343.10716	152425.63605	40.0
6	83.400717	322405.61498	152425.71788	41.0
6	83.400717	322468.12270	152425.79976	42.0
6	83.400717	322530.63053	152425.88136	43.0
6	83.400717	322593.13827	152425.96314	44.0
6	83.400717	322655.64556	152426.04851	45.0
6	83.400717	322733.77975	152426.15633	46.0
6	83.400717	322811.91406	152426.26446	47.0
6	83.400717	322874.43968	152410.66342	48.0
6	83.400717	322936.96146	152395.06277	49.0
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6	83.400717	323061.96934	152395.23573	51.0
6	83.400717	323140.10868	152379.65826	52.0
6	83.400717	323186.98520	152379.72318	53.0
6	83.400717	323249.48697	152379.80941	54.0
6	83.400717	323327.61256	152379.91900	55.0
6	83.400717	323390.11737	152348.63705	56.0
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6	83.400717	323530.73459	152333.14971	58.0
6	83.400717	323593.22543	152317.55412	59.0
6	83.400717	323640.08991	152301.93798	60.0
6	83.400717	323733.82765	152302.06562	61.0
6	83.400717	323811.94267	152302.17275	62.0
6	83.400717	323874.42067	152286.57949	63.0
6	83.400717	323936.91275	152286.67440	64.0
6	83.400717	323999.36668	152255.40770	65.0
6	83.400717	324061.85948	152255.49985	66.0
6	83.400717	324124.34110	152255.58752	67.0
6	83.400717	324186.80440	152240.00091	68.0
6	83.400717	324264.83129	152193.08909	69.0
6	83.400717	324311.60848	152146.14212	70.0
6	83.400717	324389.66847	152130.58514	71.0
6	83.400717	324436.52257	152130.65263	72.0
6	83.400717	324498.99472	152130.74226	73.0
6	83.400717	324561.43078	152115.16390	74.0
6	83.400717	324639.51867	152115.27645	75.0
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6	83.400717	324795.69539	152115.50104	77.0
6	83.400717	324858.07471	152084.25728	78.0
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6	83.400717	325013.98837	152006.16412	81.0
6	83.400717	325076.34052	151974.93530	82.0
6	83.400717	325123.18162	151975.00401	83.0
6	83.400717	325172.87493	151969.87587	84.0
6	83.400717	325248.04464	151959.55312	85.0
6	83.400717	325263.59190	151943.90462	86.0
6	83.400717	325154.39059	151959.46780	87.0
6	83.400717	325107.51390	151959.32273	88.0
6	83.400717	325029.50009	151974.86674	89.0
6	83.400717	324982.75973	152006.11946	90.0
6	83.400717	324842.27682	152021.57870	91.0
6	83.400717	324764.20330	152021.46662	92.0
6	83.400717	324654.90096	152021.30979	93.0
6	83.400717	324576.86479	152036.85968	94.0
6	83.400717	324498.78956	152036.74756	95.0
6	83.400717	324436.39381	152067.98509	96.0
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6	83.400717	324280.28866	152099.09246	98.0
6	83.400717	324233.48928	152130.36025	99.0
6	83.400717	324171.01772	152130.27042	100.0

6	83.400717	324092.95172	152145.82742	101.0
6	83.400717	324046.09690	152145.75983	102.0
6	83.400717	323983.63856	152161.34050	103.0
6	83.400717	323889.92618	152161.20152	104.0
6	83.400717	323843.08370	152176.80870	105.0
6	83.400717	323780.60748	152176.71988	106.0
6	83.400717	323702.52965	152207.96119	107.0
6	83.400717	323624.43854	152223.52651	108.0
6	83.400717	323546.33454	152223.41885	109.0
6	83.400717	323436.99139	152223.26808	110.0
6	83.400717	323390.13015	152223.20347	111.0
6	83.400717	323327.64860	152223.11705	112.0
6	83.400717	323265.16707	152223.03079	113.0
6	83.400717	323187.05698	152238.59890	114.0
6	83.400717	323140.18486	152254.21025	115.0
6	83.400717	323062.06566	152269.77992	116.0
6	83.400717	322983.92721	152301.02964	117.0
6	83.400717	322937.05853	152300.96511	118.0
6	83.400717	322874.53080	152332.24079	119.0
6	83.400717	322812.03547	152332.15447	120.0
6	83.400717	322749.54003	152332.06832	121.0
6	83.400717	322671.42103	152331.96041	122.0
6	83.400717	322546.40147	152347.47413	123.0
6	83.400717	322483.90397	152347.39264	124.0
6	83.400717	322437.03072	152347.33098	125.0
6	83.400717	322358.94413	152331.54682	126.0
6	83.400717	322202.70527	152331.34227	127.0
6	83.400717	322093.33768	152331.19936	128.0
6	83.400717	322015.21779	152331.09718	129.0
6	83.400717	321937.14612	152315.31354	130.0
6	83.400717	321843.45675	152299.51058	131.0
6	83.400717	321749.77311	152283.70877	132.0
6	83.400717	321687.33955	152267.94860	133.0
6	83.400717	321624.91018	152252.18961	134.0
6	83.400717	321562.54509	152220.75567	135.0
6	83.400717	321515.86977	152173.67466	136.0
6	83.400717	321453.58676	152126.57826	137.0
6	83.400717	321422.61141	152063.87219	138.0
6	83.400717	321376.09687	151985.50340	139.0
6	83.400717	321345.14038	151922.83456	140.0
6	83.400717	321282.97354	151860.14174	141.0
6	83.400717	321208.06135	151799.73967	142.0
6	83.400717	321212.38477	151799.74075	143.0
6	83.400717	321350.56207	151799.77646	144.0
6	83.400717	321488.75334	151731.17190	145.0
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6	83.400717	321730.63955	151319.38734	148.0
6	83.400717	321765.20769	151182.11355	149.0
6	83.400717	321765.21271	151153.27228	150.0



6	83.400717	321776.54094	151157.74158	151.0
6	83.400717	321841.06015	151187.65061	152.0
6	83.400717	321905.94540	151203.71422	153.0
6	83.400717	321958.12351	151205.58804	154.0
6	83.400717	322009.96718	151220.98943	155.0
6	83.400717	322074.88045	151236.86507	156.0
6	83.400717	322127.08138	151238.74004	157.0
6	83.400717	322179.28385	151240.61550	158.0
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6	83.400717	322297.02979	151231.30046	160.0
6	83.400717	322349.50397	151219.64533	161.0
6	83.400717	322388.64627	151221.05112	162.0
6	83.400717	322467.18894	151210.33635	163.0
6	83.400717	322545.70737	151199.62473	164.0
6	83.400717	322610.92892	151201.96668	165.0
6	83.400717	322676.15358	151204.31157	166.0
6	83.400717	322728.33541	151206.18864	167.0
6	83.400717	322793.56484	151208.53543	168.0
6	83.400717	322845.74790	151210.40762	169.0
6	83.400717	322897.93230	151212.27929	170.0
6	83.400717	322963.16485	151214.62005	171.0
6	83.400717	323015.35258	151216.49293	172.0
6	83.400717	323080.58935	151218.83392	173.0
6	83.400717	323145.82878	151221.17675	174.0
6	83.400717	323211.07099	151223.52064	175.0
6	83.400717	323263.26616	151225.39527	176.0
6	83.400717	323328.51226	151227.73850	177.0
6	83.400717	323380.71032	151229.61289	178.0
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6	83.400717	323511.21439	151234.30310	180.0
6	83.400717	323563.48235	151222.65258	181.0
6	83.400717	323628.72715	151224.99588	182.0
6	83.400717	323707.06135	151214.28245	183.0
6	83.400717	323785.37119	151203.57261	184.0
6	83.400717	323837.55469	151205.44634	185.0
6	83.400717	323915.83386	151208.25944	186.0
6	83.400717	323968.02223	151210.13505	187.0
6	83.400717	324007.16465	151211.54266	188.0
6	83.400717	324059.40344	151240.46885	189.0
6	83.400717	324124.66635	151242.81366	190.0
6	83.400717	324176.92410	151258.22520	191.0
6	83.400717	324229.14803	151260.10415	192.0
6	83.400717	324281.43721	151275.52345	193.0
6	83.400717	324333.67156	151277.40007	194.0
6	83.400717	324385.90845	151279.27862	195.0
6	83.400717	324438.14801	151281.15820	196.0
6	83.400717	324490.38879	151283.03794	197.0
6	83.400717	324529.56789	151284.44437	198.0
6	83.400717	324594.86771	151286.78880	199.0
6	83.400717	324660.17120	151289.13463	200.0

6	83.400717	324712.41720	151291.01344	201.0
6	83.400717	324764.21784	151279.02307	202.0
6	83.400717	324815.64255	151253.30114	203.0
6	83.400717	324854.24105	151200.72306	204.0
6	83.400717	324892.96332	151161.71624	205.0
6	83.400717	324892.08797	151094.25901	206.0
6	83.400717	324878.33324	151039.87361	207.0
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6	83.400717	324799.05830	150956.17892	209.0
6	83.400717	324733.42748	150913.39875	210.0
6	83.400717	324681.03422	150884.57299	211.0
6	83.400717	324654.45592	150829.99383	212.0
6	83.400717	324602.03128	150787.86329	213.0
6	83.400717	324549.95489	150759.31065	214.0
6	83.400717	324485.52811	150757.39743	215.0
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6	83.400717	324356.36022	150726.73490	217.0
6	83.400717	324304.79877	150725.19371	218.0
6	83.400717	324227.00777	150722.40822	219.0
6	83.400717	324162.18471	150720.08722	220.0
6	83.400717	324084.39981	150717.30224	221.0
6	83.400717	324045.50831	150715.90945	222.0
6	83.400717	323993.66815	150727.40314	223.0
6	83.400717	323928.84245	150738.43469	224.0
6	83.400717	323863.98653	150762.82967	225.0
6	83.400717	323799.11014	150773.87310	226.0
6	83.400717	323734.24706	150771.55179	227.0
6	83.400717	323669.38599	150769.23064	228.0
6	83.400717	323617.49904	150767.37398	229.0
6	83.400717	323539.67094	150764.58867	230.0
6	83.400717	323474.81665	150762.26761	231.0
6	83.400717	323422.93458	150760.41099	232.0
6	83.400717	323384.02398	150759.01822	233.0
6	83.400717	323319.17501	150756.69787	234.0
6	83.400717	323267.29728	150754.84105	235.0
6	83.400717	323215.29744	150766.34913	236.0
6	83.400717	323163.28066	150777.86010	237.0
6	83.400717	323111.24584	150789.37275	238.0
6	83.400717	323058.89400	150827.65852	239.0
6	83.400717	323019.47636	150866.44859	240.0
6	83.400717	322967.02456	150904.81522	241.0
6	83.400717	322914.69537	150929.79291	242.0
6	83.400717	322849.51649	150940.89274	243.0
6	83.400717	322797.51417	150939.02680	244.0
6	83.400717	322732.30475	150950.12327	245.0
6	83.400717	322680.29636	150948.25597	246.0
6	83.400717	322628.28942	150946.38916	247.0
6	83.400717	322562.80847	150970.92905	248.0
6	83.400717	322523.54790	150982.97262	249.0
6	83.400717	322457.99962	151007.53773	250.0

6	83.400717	322405.68880	151019.12646	251.0
6	83.400717	322366.10383	151044.64967	252.0
6	83.400717	322300.44803	151069.25634	253.0
6	83.400717	322261.09190	151081.33176	254.0
6	83.400717	322195.36833	151103.96265	255.0
6	83.400717	322143.25706	151104.09251	256.0
6	83.400717	322091.14722	151102.22230	257.0
6	83.400717	322039.03884	151100.35236	258.0
6	83.400717	321999.95843	151098.94974	259.0
6	83.400717	321934.40051	151109.66257	260.0
6	83.400717	321869.18717	151106.81092	261.0
6	83.400717	321817.46615	151091.51132	262.0
6	83.400717	321765.22792	151067.05552	263.0
6	83.400717	321765.23178	151044.83217	264.0
6	83.400717	321694.31683	150997.83832	265.0
6	83.400717	321677.47260	150979.58939	266.0
6	83.400717	321640.05345	150924.45790	267.0
6	83.400717	321602.68720	150869.40436	268.0
6	83.400717	321577.94241	150828.28100	269.0
6	83.400717	321541.08189	150759.99311	270.0
6	83.400717	321516.82410	150705.63437	271.0
6	83.400717	321505.55124	150651.81375	272.0
6	83.400717	321481.35247	150597.60637	273.0
6	83.400717	321470.12002	150543.93618	274.0
6	83.400717	321454.43044	150508.80363	275.0
6	83.400717	321454.43997	150392.59788	276.0
6	83.400717	321488.99721	150255.29568	277.0
6	83.400717	321489.02221	150132.75796	278.0
6	83.400717	321547.96539	150122.63452	279.0
6	83.400717	321574.89263	150084.03741	280.0
6	83.400717	321577.32760	150005.33776	281.0
6	83.400717	321566.12347	149952.55259	282.0
6	83.400717	321530.46094	149923.43279	283.0
6	83.400717	321557.30825	149819.55682	284.0
6	83.400717	321572.88797	149784.92168	285.0
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6	83.400717	321702.02425	149695.86472	290.0
6	83.400717	321703.55232	149643.92412	291.0
6	83.400717	321653.64871	149603.36507	292.0
6	83.400717	321620.17723	149579.12396	293.0
6	83.400717	321624.08169	149563.30778	294.0
6	83.400717	321623.75275	149550.52792	295.0
6	83.400717	321642.45377	149551.13374	296.0
6	83.400717	321706.22142	149553.19965	297.0
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6	83.400717	321696.52872	149449.36636	301.0
6	83.400717	321646.75547	149408.99790	302.0
6	83.400717	321672.98735	149384.04226	303.0
6	83.400717	321736.98325	149373.23198	304.0
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6	83.400717	321814.38616	149337.09577	306.0
6	83.400717	321790.42257	149284.82326	307.0
6	83.400717	321740.72358	149244.62357	308.0
6	83.400717	321703.38393	149217.70511	309.0
6	83.400717	321653.76034	149177.56531	310.0
6	83.400717	321666.83743	149165.16721	311.0
6	83.400717	321730.27595	149167.25388	312.0
6	83.400717	321781.01930	149168.92285	313.0
6	83.400717	321782.11752	149130.50678	314.0
6	83.400717	321758.23945	149078.50983	315.0
6	83.400717	321734.39205	149026.58016	316.0
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6	83.400717	321787.95561	148926.28110	318.0
6	83.400717	321789.77353	148862.68772	319.0
6	83.400717	321791.22560	148811.89052	320.0
6	83.400717	321792.67558	148761.16198	321.0
6	83.400717	321768.90784	148709.65800	322.0
6	83.400717	321745.17045	148658.22019	323.0
6	83.400717	321771.83235	148608.54150	324.0
6	83.400717	321798.45639	148558.93310	325.0
6	83.400717	321812.47009	148508.97064	326.0
6	83.400717	321839.06279	148459.56243	327.0
6	83.400717	321840.51516	148409.37811	328.0
6	83.400717	321854.52510	148359.69450	329.0
6	83.400717	321856.32647	148297.12208	330.0
6	83.400717	321870.30855	148247.57155	331.0
6	83.400717	321883.91828	148210.55681	332.0
6	83.400717	321897.86933	148161.10886	333.0
6	83.400717	321899.63431	148098.83193	334.0
6	83.400717	321901.02364	148049.05895	335.0
6	83.400717	321915.15264	147987.28701	336.0
6	83.400717	321928.93457	147938.04261	337.0
6	83.400717	321943.01223	147876.48411	338.0
6	83.400717	321956.74919	147827.40959	339.0
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6	83.400717	321948.38119	147666.58514	342.0
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6	83.400717	321957.51612	147578.19315	345.0
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6	83.400717	322000.91596	147459.46699	348.0
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6	83.400717	322366.10383	151044.64967	252.0
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6	83.400717	321765.22792	151067.05552	263.0
6	83.400717	321765.23178	151044.83217	264.0
6	83.400717	321694.31683	150997.83832	265.0
6	83.400717	321677.47260	150979.58939	266.0
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6	83.400717	321577.94241	150828.28100	269.0
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6	83.400717	321516.82410	150705.63437	271.0
6	83.400717	321505.55124	150651.81375	272.0
6	83.400717	321481.35247	150597.60637	273.0
6	83.400717	321470.12002	150543.93618	274.0
6	83.400717	321454.43044	150508.80363	275.0
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6	83.400717	321577.32760	150005.33776	281.0
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6	83.400717	321530.46094	149923.43279	283.0
6	83.400717	321557.30825	149819.55682	284.0
6	83.400717	321572.88797	149784.92168	285.0
6	83.400717	321582.71150	149759.36513	286.0
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6	83.400717	321703.55232	149643.92412	291.0
6	83.400717	321653.64871	149603.36507	292.0
6	83.400717	321620.17723	149579.12396	293.0
6	83.400717	321624.08169	149563.30778	294.0
6	83.400717	321623.75275	149550.52792	295.0
6	83.400717	321642.45377	149551.13374	296.0
6	83.400717	321706.22142	149553.19965	297.0
6	83.400717	321757.22782	149554.85220	298.0
6	83.400717	321771.08763	149516.45195	299.0
6	83.400717	321747.09373	149463.93471	300.0

6	83.400717	322032.79622	147358.90235	351.0
6	83.400717	322048.39064	147324.26204	352.0
6	83.400717	322069.74659	147280.54213	353.0
6	83.400717	322094.48248	147251.62543	354.0
6	83.400717	322119.21840	147222.70874	355.0
6	83.400717	322125.67143	147182.34481	356.0
6	83.400717	322135.50439	147156.78409	357.0
6	83.400717	322140.26753	147109.01862	358.0
6	83.400717	322152.48191	147059.57533	359.0
6	83.400717	322150.79201	147052.17378	360.0
6	83.400717	322163.00640	147002.73038	361.0
6	83.400717	322180.98236	146944.20739	362.0
6	83.400717	322183.36389	146920.32482	363.0
6	83.400717	322189.81685	146879.96100	364.0
6	83.400717	322194.58025	146832.19597	365.0
6	83.400717	322204.41370	146806.63536	366.0
6	83.400717	322216.17707	146757.11717	367.0
6	83.400717	322219.95988	146740.59408	368.0
6	83.400717	322233.02111	146698.45104	369.0
6	83.400717	322235.08062	146674.54537	370.0
6	83.400717	322246.41088	146625.05502	371.0
6	83.400717	322245.39558	146586.41732	372.0
6	83.400717	322237.05521	146549.46445	373.0
6	83.400717	322237.73902	146518.21891	374.0
6	83.400717	322245.77916	146485.29409	375.0
6	83.400717	322239.10698	146455.72849	376.0
6	83.400717	322232.43425	146426.16089	377.0
6	83.400717	322231.45006	146387.52246	378.0
6	83.400717	322226.44509	146365.34422	379.0
6	83.400717	322221.44000	146343.16465	380.0
6	83.400717	322214.76614	146313.59020	381.0
6	83.400717	322213.85931	146274.94303	382.0
6	83.400717	322208.87804	146252.75720	383.0
6	83.400717	322213.83810	146205.02383	384.0
6	83.400717	322205.53580	146168.03697	385.0
6	83.400717	322205.31676	146157.96009	386.0
6	83.400717	322221.18980	146147.92500	387.0
6	83.400717	322229.26125	146108.68957	388.0
6	83.400717	322225.60374	146056.62014	389.0
6	83.400717	322243.46447	146004.81243	390.0
6	83.400717	322274.77160	145991.89076	391.0
6	83.400717	322328.48490	145991.86562	392.0
6	83.400717	322382.19822	145991.84118	393.0
6	83.400717	322411.33675	145953.20448	394.0
6	83.400717	322407.23619	145901.94247	395.0
6	83.400717	322404.17444	145863.66989	396.0
6	83.400717	322388.45905	145800.21629	397.0
6	83.400717	322395.06023	145749.73782	398.0
6	83.400717	322435.44090	145724.57823	399.0
6	83.400717	322476.71122	145711.84578	400.0

6	83.400717	322493.19326	145660.72211	401.0
6	83.400717	322488.90497	145610.87234	402.0
6	83.400717	322482.50577	145536.55675	403.0
6	83.400717	322477.10615	145474.80498	404.0
6	83.400717	322461.17820	145413.11940	405.0
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6	83.400717	322408.93008	145290.98655	407.0
6	83.400717	322396.61925	145249.91740	408.0
6	83.400717	322395.87920	145242.51977	409.0
6	83.400717	322420.86423	145263.70851	410.0
6	83.400717	322469.12845	145276.65018	411.0
6	83.400717	322508.00740	145289.50235	412.0
6	83.400717	322555.54263	145299.14554	413.0
6	83.400717	322578.36999	145246.04374	414.0
6	83.400717	322594.34109	145219.29971	415.0
6	83.400717	322615.69015	145154.04266	416.0
6	83.400717	322647.67190	145102.53980	417.0
6	83.400717	322671.53883	145064.11705	418.0
6	83.400717	322695.30238	145025.86211	419.0
6	83.400717	322718.96288	144987.77191	420.0
6	83.400717	322753.04958	144962.03982	421.0
6	83.400717	322774.59532	144902.20099	422.0
6	83.400717	322799.76608	144878.41310	423.0
6	83.400717	322812.27419	144828.17036	424.0
6	83.400717	322832.33430	144765.62971	425.0
6	83.400717	322837.26734	144729.15165	426.0
6	83.400717	322848.51155	144668.79083	427.0
6	83.400717	322850.63466	144608.90767	428.0
6	83.400717	322845.10576	144561.34408	429.0
6	83.400717	322838.23643	144502.24803	430.0
6	83.400717	322841.74078	144455.18805	431.0
6	83.400717	322836.25134	144408.35283	432.0
6	83.400717	322810.01163	144337.98140	433.0
6	83.400717	322795.59861	144291.36540	434.0
6	83.400717	322781.26369	144245.00183	435.0
6	83.400717	322765.66142	144187.38531	436.0
6	83.400717	322751.63217	144141.98189	437.0
6	83.400717	322735.12383	144074.33092	438.0
6	83.400717	322721.20967	144029.35988	439.0
6	83.400717	322715.98056	143984.23895	440.0
6	83.400717	322718.15123	143928.04276	441.0
6	83.400717	322722.90647	143894.45327	442.0
6	83.400717	322742.28146	143838.59450	443.0
6	83.400717	322762.87271	143794.18256	444.0
6	83.400717	322793.29978	143760.92781	445.0
6	83.400717	322805.16354	143717.23347	446.0
6	83.400717	322826.82447	143684.42207	447.0
6	83.400717	322847.05661	143641.00786	448.0
6	83.400717	322861.38262	143619.32421	449.0
6	83.400717	322872.96336	143576.38268	450.0

6	83.400717	322891.57887	143522.96215	451.0
6	83.400717	322904.37563	143491.05404	452.0
6	83.400717	322924.49872	143449.45179	453.0
6	83.400717	322921.85986	143428.76524	454.0
6	83.400717	322922.83909	143426.06846	455.0
6	83.400717	322932.19410	143439.84306	456.0
6	83.400717	322925.68436	143418.23266	457.0
6	83.400717	322940.56354	143377.25511	458.0
6	83.400717	322953.41235	143346.50051	459.0
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6	83.400717	322998.38120	143244.13394	461.0
6	83.400717	323017.69251	143203.14726	462.0
6	83.400717	323047.02209	143173.27548	463.0
6	83.400717	323066.15389	143132.70795	464.0
6	83.400717	323076.98560	143092.50309	465.0
6	83.400717	323095.94466	143052.34543	466.0
6	83.400717	323095.67686	142993.02188	467.0
6	83.400717	323072.21170	142943.91974	468.0
6	83.400717	323051.55585	142914.41474	469.0
6	83.400717	323028.18096	142865.47827	470.0
6	83.400717	323006.32986	142826.55011	471.0
6	83.400717	322984.58708	142787.81417	472.0
6	83.400717	322972.40262	142758.88570	473.0
6	83.400717	322960.26355	142730.06433	474.0
6	83.400717	322945.50745	142682.26239	475.0
6	83.400717	322921.49191	142625.29116	476.0
6	83.400717	322889.64954	142568.74818	477.0
6	83.400717	322859.30449	142521.95232	478.0
6	83.400717	322848.81242	142503.31292	479.0
6	83.400717	322826.66731	142456.90965	480.0
6	83.400717	322795.51872	142401.59883	481.0
6	83.400717	322774.87813	142364.94711	482.0
6	83.400717	322754.33670	142328.47156	483.0
6	83.400717	322739.41362	142274.07744	484.0
6	83.400717	322725.75468	142229.04744	485.0
6	83.400717	322721.13417	142193.21339	486.0
6	83.400717	322699.81575	142148.66871	487.0
6	83.400717	322695.28150	142113.21646	488.0
6	83.400717	322681.89819	142069.14094	489.0
6	83.400717	322653.14845	142025.33378	490.0
6	83.400717	322648.75936	141990.46000	491.0
6	83.400717	322620.26297	141947.12322	492.0
6	83.400717	322600.65941	141912.64938	493.0
6	83.400717	322581.14872	141878.33943	494.0
6	83.400717	322546.47705	141844.20759	495.0
6	83.400717	322519.57294	141810.22225	496.0
6	83.400717	322492.79306	141776.39376	497.0
6	83.400717	322467.10067	141751.12345	498.0
6	83.400717	322433.94156	141725.96393	499.0
6	83.400717	322393.35707	141700.92698	500.0



6	83.400717	322368.89115	141684.27863	501.0
6	83.400717	322344.38996	141667.48009	502.0
6	83.400717	322289.90491	141650.88465	503.0
6	83.400717	322257.25934	141626.03484	504.0
6	83.400717	322210.53583	141609.52952	505.0
6	83.400717	322194.71637	141601.28701	506.0
6	83.400717	322139.87688	141576.61959	507.0
6	83.400717	322108.40871	141560.21877	508.0
6	83.400717	322077.01208	141543.85532	509.0
6	83.400717	322045.68688	141527.52913	510.0
6	83.400717	322006.28384	141503.10501	511.0
6	83.400717	321951.47702	141470.67198	512.0
6	83.400717	321927.87956	141454.50824	513.0
6	83.400717	321881.46319	141430.33749	514.0
6	83.400717	321858.01123	141414.26464	515.0
6	83.400717	321818.65461	141382.22404	516.0
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6	83.400717	321726.28607	141326.51282	519.0
6	83.400717	321681.12438	141310.68641	520.0
6	83.400717	321642.92758	141286.99629	521.0
6	83.400717	321590.65360	141271.26182	522.0
6	83.400717	321553.14170	141255.55407	523.0
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6	83.400717	321269.21357	141092.66257	531.0
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6	83.400717	321210.60549	141069.71165	533.0
6	83.400717	321181.04894	141046.81952	534.0
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6	83.400717	321114.67750	140986.13436	537.0
6	83.400717	321085.45558	140963.51638	538.0
6	83.400717	321048.88459	140925.97733	539.0
6	83.400717	321005.49803	140896.10085	540.0
6	83.400717	320976.64408	140873.77696	541.0
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6	83.400717	320926.31888	140829.34212	543.0
6	83.400717	320890.64314	140807.23831	544.0
6	83.400717	320869.24040	140785.19811	545.0
6	83.400717	320833.74735	140755.92661	546.0
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6	83.400717	320791.35995	140734.06340	548.0
6	83.400717	320770.21238	140726.79723	549.0
6	83.400717	320728.08206	140690.54120	550.0

6	83.400717	320700.15155	140661.67296	551.0
6	83.400717	320686.28556	140640.09887	552.0
6	83.400717	320665.53675	140611.44160	553.0
6	83.400717	320644.95246	140575.78874	554.0
6	83.400717	320617.52547	140540.32829	555.0
6	83.400717	320590.03382	140519.14786	556.0
6	83.400717	320569.55884	140498.03089	557.0
6	83.400717	320542.35965	140469.97877	558.0
6	83.400717	320515.27477	140442.04447	559.0
6	83.400717	320494.88158	140428.12466	560.0
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6	83.400717	320434.32889	140372.72588	562.0
6	83.400717	320413.93072	140365.83994	563.0
6	83.400717	320359.93807	140338.35471	564.0
6	83.400717	320332.78828	140331.50843	565.0
6	83.400717	320291.98685	140324.67569	566.0
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6	83.400717	320217.34333	140311.02740	568.0
6	83.400717	320183.49369	140304.21327	569.0
6	83.400717	320176.66434	140304.21656	570.0
6	83.400717	320129.20097	140297.41684	571.0
6	83.400717	320088.97269	140283.80974	572.0
6	83.400717	320055.25866	140277.02371	573.0
6	83.400717	320021.57932	140270.24472	574.0
6	83.400717	319994.74339	140263.46919	575.0
6	83.400717	319974.31749	140263.47964	576.0
6	83.400717	319927.10386	140256.72151	577.0
6	83.400717	319900.34384	140249.95983	578.0
6	83.400717	319873.13690	140249.97369	579.0
6	83.400717	319839.12765	140249.99102	580.0
6	83.400717	319810.90598	140263.56321	581.0
6	83.400717	319792.39809	140276.67425	582.0
6	83.400717	319770.99070	140272.38875	583.0
6	83.400717	319726.97479	140254.70022	584.0
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6	83.400717	319657.04646	140210.62957	586.0
6	83.400717	319622.13978	140193.07513	587.0
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6	83.400717	319509.84161	140114.54280	590.0
6	83.400717	319475.31464	140097.20509	591.0
6	83.400717	319440.86507	140079.90608	592.0
6	83.400717	319397.75916	140062.65127	593.0
6	83.400717	319363.47295	140045.42947	594.0
6	83.400717	319337.63984	140036.83844	595.0
6	83.400717	319355.67768	140074.18098	596.0
6	83.400717	319336.68607	140108.83404	597.0
6	83.400717	319326.38645	140143.63723	598.0
6	83.400717	319306.84467	140187.36613	599.0
6	83.400717	319304.22887	140192.14637	600.0

6	83.400717	319290.43280	140181.70317	601.0
6	83.400717	319293.56915	140156.27590	602.0
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6	83.400717	319260.93149	140007.07828	604.0
6	83.400717	319184.28879	139985.89529	605.0
6	83.400717	319048.05158	139963.69246	606.0
6	83.400717	318894.67703	140022.06244	607.0
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6	83.400717	318622.71867	140188.11464	609.0
6	83.400717	318612.58393	140199.76886	610.0
6	83.400717	318433.33582	140151.13823	611.0
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6	83.400717	317694.42915	139748.99821	613.0
6	83.400717	317251.77071	139466.31721	614.0
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6	83.400717	314290.81414	137419.36180	620.0
6	83.400717	313826.28950	137162.69199	621.0
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6	83.400717	313526.65240	137037.12457	623.0
6	83.400717	313477.92187	137058.15332	624.0
6	83.400717	313445.41465	137117.35435	625.0
6	83.400717	313415.35412	137175.16912	626.0
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6	83.400717	313837.70216	137449.86740	628.0
6	83.400717	314431.49255	137844.48029	629.0
6	83.400717	314712.21269	138027.92586	630.0
6	83.400717	315153.26992	138289.81448	631.0
6	83.400717	316494.42251	139241.40962	632.0
6	83.400717	317089.65864	139627.78699	633.0
6	83.400717	317746.54997	140047.48974	634.0
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6	83.400717	318265.13881	140326.86355	636.0
6	83.400717	318205.57052	140384.71040	637.0
6	83.400717	318139.56975	140489.80737	638.0
6	83.400717	318074.01374	140574.01902	639.0
6	83.400717	317989.00879	140595.01260	640.0
6	83.400717	317902.76083	140658.23329	641.0
6	83.400717	317844.79292	140672.55578	642.0
6	83.400717	317844.79568	140670.34766	643.0
6	83.400717	317844.81934	140651.33390	644.0
6	83.400717	317844.84289	140632.32036	645.0
6	83.400717	317844.87260	140608.55325	646.0
6	83.400717	317844.89032	140594.29296	647.0
6	83.400717	317854.48408	140575.29138	648.0
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6	83.400717	317859.31634	140537.26996	650.0

6	83.400717	317868.91034	140518.26817	651.0
6	83.400717	317873.71311	140504.01397	652.0
6	83.400717	317888.08612	140489.77163	653.0
6	83.400717	317897.68001	140470.76995	654.0
6	83.400717	317902.48874	140451.76206	655.0
6	83.400717	317921.64099	140442.27939	656.0
6	83.400717	317936.00818	140432.79053	657.0
6	83.400717	317945.60210	140413.78885	658.0
6	83.400717	317969.52765	140413.81901	659.0
6	83.400717	317988.66802	140413.84308	660.0
6	83.400717	318007.79649	140423.37442	661.0
6	83.400717	318026.93686	140423.39860	662.0
6	83.400717	318046.06544	140432.92951	663.0
6	83.400717	318065.18794	140447.21423	664.0
6	83.400717	318074.73446	140466.24021	665.0
6	83.400717	318074.70468	140490.00722	666.0
6	83.400717	318060.33163	140504.24942	667.0
6	83.400717	318074.66905	140518.52804	668.0
6	83.400717	318093.80940	140518.55214	669.0
6	83.400717	318112.96751	140504.31595	670.0
6	83.400717	318127.34058	140490.07376	671.0
6	83.400717	318132.14948	140471.06610	672.0
6	83.400717	318132.17332	140452.05200	673.0
6	83.400717	318122.62692	140433.02623	674.0
6	83.400717	318108.28949	140418.74772	675.0
6	83.400717	318089.16092	140409.21668	676.0
6	83.400717	318079.61461	140390.19070	677.0
6	83.400717	318065.27705	140375.91197	678.0
6	83.400717	318046.14857	140366.38095	679.0
6	83.400717	318022.22895	140361.59719	680.0
6	83.400717	318003.09451	140356.81954	681.0
6	83.400717	317983.95402	140356.79536	682.0
6	83.400717	317964.81352	140356.77107	683.0
6	83.400717	317940.88806	140356.74081	684.0
6	83.400717	317916.96261	140356.71077	685.0
6	83.400717	317897.82200	140356.68662	686.0
6	83.400717	317878.67578	140361.41583	687.0
6	83.400717	317859.52341	140370.89873	688.0
6	83.400717	317859.49965	140389.91259	689.0
6	83.400717	317859.47610	140408.92646	690.0
6	83.400717	317859.45245	140427.94044	691.0
6	83.400717	317854.64373	140446.94822	692.0
6	83.400717	317840.26479	140465.94403	693.0
6	83.400717	317830.67091	140484.94572	694.0
6	83.400717	317816.29780	140499.18796	695.0
6	83.400717	317806.70405	140518.18976	696.0
6	83.400717	317806.68040	140537.20340	697.0
6	83.400717	317801.87170	140556.21107	698.0
6	83.400717	317797.06312	140575.21874	699.0
6	83.400717	317797.04388	140590.70919	700.0

6	83.400717	317779.71421	140559.75690	701.0
6	83.400717	317762.09245	140520.84856	702.0
6	83.400717	317734.18815	140482.15172	703.0
6	83.400717	317696.08232	140443.66431	704.0
6	83.400717	317647.85488	140405.38267	705.0
6	83.400717	317587.15009	140392.69094	706.0
6	83.400717	317547.15596	140380.01068	707.0
6	83.400717	317498.23163	140354.69784	708.0
6	83.400717	317448.14077	140342.09066	709.0
6	83.400717	317398.13610	140329.50508	710.0
6	83.400717	317370.13733	140304.35657	711.0
6	83.400717	317320.32884	140291.83608	712.0
6	83.400717	317280.83848	140279.33076	713.0
6	83.400717	317242.92270	140254.36117	714.0
6	83.400717	317171.41473	140254.40164	715.0
6	83.400717	317091.32530	140241.98366	716.0
6	83.400717	317062.36378	140229.55797	717.0
6	83.400717	317002.88325	140217.17070	718.0
6	83.400717	316962.12391	140217.19371	719.0
6	83.400717	316912.95997	140204.82117	720.0
6	83.400717	316850.03272	140217.25655	721.0
6	83.400717	316815.72233	140242.13935	722.0
6	83.400717	316752.54624	140254.63930	723.0
6	83.400717	316717.97717	140279.65263	724.0
6	83.400717	316664.79393	140292.21185	725.0
6	83.400717	316607.39479	140329.96517	726.0
6	83.400717	316574.48739	140342.60183	727.0
6	83.400717	316523.08635	140342.63488	728.0
6	83.400717	316481.96491	140342.66114	729.0
6	83.400717	316407.74985	140355.37258	730.0
6	83.400717	316374.60826	140368.05714	731.0
6	83.400717	316292.21325	140368.11830	732.0
6	83.400717	316238.32265	140380.84170	733.0
6	83.400717	316181.89076	140406.31782	734.0
6	83.400717	316127.76007	140419.10879	735.0
6	83.400717	316086.41537	140419.13898	736.0
6	83.400717	316057.96458	140406.40985	737.0
6	83.400717	316047.57226	140355.63559	738.0
6	83.400717	316029.55954	140292.66565	739.0
6	83.400717	315975.89981	140255.17543	740.0
6	83.400717	315940.28015	140230.28915	741.0
6	83.400717	315897.25687	140193.11252	742.0
6	83.400717	315829.41909	140131.57239	743.0
6	83.400717	315776.86404	140094.90808	744.0
6	83.400717	315734.65882	140058.42372	745.0
6	83.400717	315679.80064	140034.22168	746.0
6	83.400717	315652.44099	140022.15139	747.0
6	83.400717	315612.21299	140022.17818	748.0
6	83.400717	315561.92682	140022.21255	749.0
6	83.400717	315508.68185	140034.33939	750.0

6	83.400717	315475.49535	140046.47249	751.0
6	83.400717	315422.08424	140058.64109	752.0
6	83.400717	315378.67365	140070.82330	753.0
6	83.400717	315318.11736	140070.86672	754.0
6	83.400717	315284.06140	140046.61174	755.0
6	83.400717	315263.34541	140010.35962	756.0
6	83.400717	315239.55936	139986.30131	757.0
6	83.400717	315229.05141	139950.34717	758.0
6	83.400717	315195.04635	139890.83850	759.0
6	83.400717	315181.52407	139867.17498	760.0
6	83.400717	315148.18170	139843.60468	761.0
6	83.400717	315088.46795	139808.40363	762.0
6	83.400717	315015.85015	139785.05895	763.0
6	83.400717	314936.71202	139785.11591	764.0
6	83.400717	314897.14196	139785.14426	765.0
6	83.400717	314827.89168	139785.19458	766.0
6	83.400717	314788.31864	139785.22443	767.0
6	83.400717	314738.08820	139820.38987	768.0
6	83.400717	314696.67551	139891.21013	769.0
6	83.400717	314662.16488	139938.82996	770.0
6	83.400717	314637.45592	139986.76487	771.0
6	83.400717	314618.93158	140047.13348	772.0
6	83.400717	314600.24904	140108.01836	773.0
6	83.400717	314575.02983	140157.11150	774.0
6	83.400717	314535.60985	140218.96113	775.0
6	83.400717	314489.49641	140268.83909	776.0
6	83.400717	314469.95896	140331.64105	777.0
6	83.400717	314450.25031	140394.99120	778.0
6	83.400717	314409.62530	140458.91574	779.0
6	83.400717	314387.15914	140497.53856	780.0
6	83.400717	314345.96802	140562.36853	781.0
6	83.400717	314319.04202	140614.64076	782.0
6	83.400717	314277.21658	140680.51263	783.0
6	83.400717	314220.33919	140693.79086	784.0
6	83.400717	314195.24173	140641.02298	785.0
6	83.400717	314193.24791	140614.76181	786.0
6	83.400717	314189.28198	140562.51713	787.0
6	83.400717	314214.55755	140484.80969	788.0
6	83.400717	314231.26097	140433.45736	789.0
6	83.400717	314237.52872	140382.47354	790.0
6	83.400717	314258.14433	140319.23003	791.0
6	83.400717	314258.12396	140256.55090	792.0
6	83.400717	314278.47364	140194.39338	793.0
6	83.400717	314274.32732	140145.06917	794.0
6	83.400717	314290.43949	140096.06477	795.0
6	83.400717	314304.34018	140023.19169	796.0
6	83.400717	314304.12349	139963.03963	797.0
6	83.400717	314327.79635	139891.50581	798.0
6	83.400717	314345.20141	139808.96697	799.0
6	83.400717	314340.94323	139762.24645	800.0

6	83.400717	314340.57895	139704.27755	801.0
6	83.400717	314316.75627	139658.26655	802.0
6	83.400717	314293.09035	139612.55871	803.0
6	83.400717	314248.13751	139601.20800	804.0
6	83.400717	314209.07492	139601.23725	805.0
6	83.400717	314167.84841	139635.47791	806.0
6	83.400717	314161.67094	139681.36177	807.0
6	83.400717	314141.56257	139739.15615	808.0
6	83.400717	314113.12755	139820.88222	809.0
6	83.400717	314094.33684	139903.56461	810.0
6	83.400717	314091.93339	139939.29498	811.0
6	83.400717	314087.08836	140011.30178	812.0
6	83.400717	314098.23461	140096.23002	813.0
6	83.400717	314101.76389	140145.21977	814.0
6	83.400717	314099.33800	140182.18746	815.0
6	83.400717	314084.21795	140256.70686	816.0
6	83.400717	314071.47037	140294.26170	817.0
6	83.400717	314039.77444	140357.29775	818.0
6	83.400717	313988.25806	140357.35652	819.0
6	83.400717	313936.74492	140357.40749	820.0
6	83.400717	313895.53458	140357.44823	821.0
6	83.400717	313844.01912	140357.49916	822.0
6	83.400717	313804.08521	140382.89758	823.0
6	83.400717	313758.23931	140395.65554	824.0
6	83.400717	313706.58646	140395.70717	825.0
6	83.400717	313684.85021	140370.32555	826.0
6	83.400717	313707.84999	140307.18009	827.0
6	83.400717	313736.33957	140257.04632	828.0
6	83.400717	313774.82913	140207.24952	829.0
6	83.400717	313823.21585	140157.78572	830.0
6	83.400717	313875.64407	140096.43953	831.0
6	83.400717	313906.05112	140011.47132	832.0
6	83.400717	313910.36532	139999.41553	833.0
6	83.400717	313940.36121	139915.59461	834.0
6	83.400717	313943.14350	139879.98255	835.0
6	83.400717	313942.97948	139797.58748	836.0
6	83.400717	313924.54179	139739.33716	837.0
6	83.400717	313897.80862	139704.63184	838.0
6	83.400717	313848.60570	139704.67177	839.0
6	83.400717	313779.72013	139704.72768	840.0
6	83.400717	313720.67307	139704.77567	841.0
6	83.400717	313662.61091	139727.95639	842.0
6	83.400717	313609.74158	139762.84646	843.0
6	83.400717	313557.42174	139821.35576	844.0
6	83.400717	313523.82737	139856.70095	845.0
6	83.400717	313510.01340	139892.20692	846.0
6	83.400717	313486.83607	139951.78428	847.0
6	83.400717	313468.15162	139999.81022	848.0
6	83.400717	313460.09309	140072.44537	849.0
6	83.400717	313461.43326	140121.27686	850.0

6	83.400717	313472.95426	140170.43675	851.0
6	83.400717	313504.96908	140219.91109	852.0
6	83.400717	313521.44925	140257.25113	853.0
6	83.400717	313543.55560	140307.33876	854.0
6	83.400717	313546.03737	140383.15357	855.0
6	83.400717	313552.46271	140421.35395	856.0
6	83.400717	313534.20370	140498.38855	857.0
6	83.400717	313540.64913	140537.19595	858.0
6	83.400717	313572.83208	140563.15195	859.0
6	83.400717	313610.84084	140602.26886	860.0
6	83.400717	313649.05202	140641.59314	861.0
6	83.400717	313714.37156	140694.33576	862.0
6	83.400717	313774.23647	140734.12740	863.0
6	83.400717	313807.26496	140760.78066	864.0
6	83.400717	313829.80337	140787.54062	865.0
6	83.400717	313864.46765	140841.37089	866.0
6	83.400717	313897.89315	140868.40966	867.0
6	83.400717	313900.88616	140922.85263	868.0
6	83.400717	313877.77712	140991.49467	869.0
6	83.400717	313836.15960	141019.16391	870.0
6	83.400717	313793.07137	141019.21435	871.0
6	83.400717	313764.24615	140977.85346	872.0
6	83.400717	313730.81814	140950.42102	873.0
6	83.400717	313702.29177	140909.43214	874.0
6	83.400717	313669.12532	140882.24506	875.0
6	83.400717	313609.92084	140868.73693	876.0
6	83.400717	313513.92131	140868.84583	877.0
6	83.400717	313471.25341	140868.89466	878.0
6	83.400717	313391.53971	140882.56248	879.0
6	83.400717	313365.64350	140923.47205	880.0
6	83.400717	313383.11539	140992.07840	881.0
6	83.400717	313416.00721	141019.66437	882.0
6	83.400717	313443.96084	141061.25845	883.0
6	83.400717	313493.73227	141103.05150	884.0
6	83.400717	313537.91859	141131.02844	885.0
6	83.400717	313576.36840	141145.03637	886.0
6	83.400717	313619.81718	141144.98358	887.0
6	83.400717	313663.26564	141144.92960	888.0
6	83.400717	313712.73262	141158.94808	889.0
6	83.400717	313735.69622	141187.15583	890.0
6	83.400717	313775.76118	141229.65469	891.0
6	83.400717	313803.74021	141243.85515	892.0
6	83.400717	313842.71180	141258.06765	893.0
6	83.400717	313877.02603	141286.62569	894.0
6	83.400717	313927.14316	141300.90329	895.0
6	83.400717	313966.37204	141315.22076	896.0
6	83.400717	314021.27697	141315.15097	897.0
6	83.400717	314076.18402	141315.07714	898.0
6	83.400717	314131.08275	141315.01153	899.0
6	83.400717	314174.99385	141314.96994	900.0



6	83.400717	314229.88627	141314.91058	901.0
6	83.400717	314295.75501	141314.83957	902.0
6	83.400717	314361.62054	141314.77193	903.0
6	83.400717	314416.50688	141314.71493	904.0
6	83.400717	314482.36821	141314.64785	905.0
6	83.400717	314552.34545	141300.20615	906.0
6	83.400717	314615.28432	141271.48776	907.0
6	83.400717	314656.13789	141242.89913	908.0
6	83.400717	314722.58174	141200.20964	909.0
6	83.400717	314777.79257	141157.76692	910.0
6	83.400717	314832.69940	141115.55903	911.0
6	83.400717	314879.79977	141101.51215	912.0
6	83.400717	314933.92292	141101.45539	913.0
6	83.400717	314984.38174	141115.40094	914.0
6	83.400717	315024.08825	141129.38327	915.0
6	83.400717	315053.01365	141143.40121	916.0
6	83.400717	315103.71694	141157.42499	917.0
6	83.400717	315147.16850	141157.38179	918.0
6	83.400717	315208.42162	141129.19797	919.0
6	83.400717	315236.98087	141101.14977	920.0
6	83.400717	315268.83214	141059.28074	921.0
6	83.400717	315307.20489	140990.02075	922.0
6	83.400717	315338.63268	140948.76056	923.0
6	83.400717	315383.82846	140894.09208	924.0
6	83.400717	315425.49596	140853.34169	925.0
6	83.400717	315474.40414	140826.27657	926.0
6	83.400717	315538.16278	140826.22368	927.0
6	83.400717	315591.29492	140826.17880	928.0
6	83.400717	315633.80021	140826.14157	929.0
6	83.400717	315686.92992	140826.09566	930.0
6	83.400717	315718.80792	140826.06786	931.0
6	83.400717	315784.55664	140866.57511	932.0
6	83.400717	315834.98870	140880.10055	933.0
6	83.400717	315874.83641	140893.66129	934.0
6	83.400717	315922.67049	140920.88286	935.0
6	83.400717	315959.96557	140948.21164	936.0
6	83.400717	315962.46019	140989.43803	937.0
6	83.400717	315916.29749	141058.69287	938.0
6	83.400717	315835.01899	141086.62796	939.0
6	83.400717	315799.67711	141100.62943	940.0
6	83.400717	315782.99584	141128.66098	941.0
6	83.400717	315806.77076	141170.85847	942.0
6	83.400717	315833.58311	141199.10956	943.0
6	83.400717	315868.52715	141241.68593	944.0
6	83.400717	315917.45554	141270.17706	945.0
6	83.400717	315980.30955	141284.42669	946.0
6	83.400717	315999.44207	141298.74355	947.0
6	83.400717	316032.32803	141356.31590	948.0
6	83.400717	316004.78192	141385.30387	949.0
6	83.400717	315963.51683	141370.84867	950.0

6	83.400717	315856.32582	141356.48168	951.0
6	83.400717	315801.32264	141356.53319	952.0
6	83.400717	315735.31698	141356.59507	953.0
6	83.400717	315713.31498	141356.61509	954.0
6	83.400717	315636.30606	141356.68796	955.0
6	83.400717	315581.29748	141356.74052	956.0
6	83.400717	315504.28248	141356.81619	957.0
6	83.400717	315471.27589	141356.84765	958.0
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6	83.400717	315634.87733	149328.33089	1257.0
6	83.400717	315548.18115	149441.36959	1258.0
6	83.400717	315527.07004	149498.30491	1259.0
6	83.400717	315544.93571	149613.00993	1260.0
6	83.400717	315599.32256	149670.79651	1261.0
6	83.400717	315653.96321	149728.85070	1262.0
6	83.400717	315703.06497	149845.73460	1263.0
6	83.400717	315743.06142	149904.59857	1264.0
6	83.400717	315783.24629	149963.73889	1265.0
6	83.400717	315818.04406	150082.82195	1266.0
6	83.400717	315946.37937	150023.22839	1267.0
6	83.400717	315961.72423	150023.23507	1268.0
6	83.400717	315974.74046	149875.30717	1269.0
6	83.400717	315985.04590	149758.19218	1270.0
6	83.400717	316040.59299	149642.19939	1271.0
6	83.400717	316103.45759	149613.40483	1272.0
6	83.400717	316170.83797	149527.33304	1273.0
6	83.400717	316231.00747	149527.37656	1274.0
6	83.400717	316291.17654	149527.41893	1275.0
6	83.400717	316355.56912	149470.38316	1276.0
6	83.400717	316395.88780	149328.84132	1277.0
6	83.400717	316418.77264	149248.52114	1278.0
6	83.400717	316420.04833	149259.86199	1279.0
6	83.400717	316424.40038	149298.54964	1280.0
6	83.400717	316428.24238	149345.35654	1281.0
6	83.400717	316455.11002	149368.88667	1282.0
6	83.400717	316481.59284	149400.43461	1283.0
6	83.400717	316509.20447	149416.26308	1284.0
6	83.400717	316536.89826	149432.13866	1285.0
6	83.400717	316579.46160	149440.06421	1286.0
6	83.400717	316614.91182	149448.00831	1287.0
6	83.400717	316650.03373	149463.97196	1288.0
6	83.400717	316671.59610	149463.94821	1289.0
6	83.400717	316707.19465	149471.92815	1290.0
6	83.400717	316757.54442	149471.87260	1291.0
6	83.400717	316786.31564	149471.84089	1292.0
6	83.400717	316822.53217	149463.78178	1293.0
6	83.400717	316866.09602	149447.73164	1294.0
6	83.400717	316895.00040	149439.71669	1295.0
6	83.400717	316924.21310	149415.80664	1296.0
6	83.400717	316937.02958	149412.25796	1297.0
6	83.400717	316910.82715	149470.88183	1298.0
6	83.400717	316874.78489	149585.26821	1299.0
6	83.400717	316838.40693	149700.71782	1300.0



6	83.400717	316801.68761	149817.25045	1301.0
6	83.400717	316735.74382	149905.33304	1302.0
6	83.400717	316671.11276	149964.37968	1303.0
6	83.400717	316608.03205	149993.97704	1304.0
6	83.400717	316556.31403	150083.30940	1305.0
6	83.400717	316502.23139	150203.46043	1306.0
6	83.400717	316451.76196	150263.94152	1307.0
6	83.400717	316412.35411	150385.83324	1308.0
6	83.400717	316386.04732	150539.87118	1309.0
6	83.400717	316332.37034	150633.37007	1310.0
6	83.400717	316291.79968	150758.90176	1311.0
6	83.400717	316250.83310	150885.65316	1312.0
6	83.400717	316195.95242	150981.52524	1313.0
6	83.400717	316172.63968	151078.11584	1314.0
6	83.400717	316236.58771	151078.13178	1315.0
6	83.400717	316302.84485	151045.87234	1316.0
6	83.400717	316371.15990	150981.57358	1317.0
6	83.400717	316423.26090	150917.48666	1318.0
6	83.400717	316508.82800	150822.17988	1319.0
6	83.400717	316564.19565	150696.05958	1320.0
6	83.400717	316599.53660	150633.45623	1321.0
6	83.400717	316683.54435	150540.14215	1322.0
6	83.400717	316723.63284	150386.12660	1323.0
6	83.400717	316785.88779	150386.18849	1324.0
6	83.400717	316849.73586	150355.66056	1325.0
6	83.400717	316914.94258	150294.76494	1326.0
6	83.400717	316981.26624	150203.93234	1327.0
6	83.400717	317063.83809	150083.82339	1328.0
6	83.400717	317085.69325	149935.19642	1329.0
6	83.400717	317126.19068	149701.00199	1330.0
6	83.400717	317143.75255	149643.14370	1331.0
6	83.400717	317148.55052	149528.19562	1332.0
6	83.400717	317169.44061	149386.01413	1333.0
6	83.400717	317192.46925	149321.79055	1334.0
6	83.400717	317195.78736	149321.05648	1335.0
6	83.400717	317195.75864	149312.61678	1336.0
6	83.400717	317219.82637	149245.49512	1337.0
6	83.400717	317272.73644	149024.00285	1338.0
6	83.400717	317335.50260	148914.79966	1339.0
6	83.400717	317399.45749	148752.79845	1340.0
6	83.400717	317447.27069	148619.44783	1341.0
6	83.400717	317539.90548	148409.17330	1342.0
6	83.400717	317569.97293	148357.19296	1343.0
6	83.400717	317578.00855	148343.30134	1344.0
6	83.400717	317609.11809	148374.67258	1345.0
6	83.400717	317686.09583	148421.06516	1346.0
6	83.400717	317695.50604	148440.25718	1347.0
6	83.400717	317655.17825	148470.28818	1348.0
6	83.400717	317586.05697	148607.53094	1349.0
6	83.400717	317551.48170	148744.77968	1350.0

6	83.400717	317516.91209	148847.71593	1351.0
6	83.400717	317482.32470	149019.28234	1352.0
6	83.400717	317447.73698	149190.84931	1353.0
6	83.400717	317378.62119	149293.78155	1354.0
6	83.400717	317344.02834	149465.35493	1355.0
6	83.400717	317343.98963	149602.61996	1356.0
6	83.400717	317343.95066	149739.88544	1357.0
6	83.400717	317343.91331	149877.15049	1358.0
6	83.400717	317343.87558	150014.41642	1359.0
6	83.400717	317343.83782	150151.68236	1360.0
6	83.400717	317343.79078	150323.26609	1361.0
6	83.400717	317343.75314	150460.53371	1362.0
6	83.400717	317412.80607	150597.81420	1363.0
6	83.400717	317412.76177	150735.09388	1364.0
6	83.400717	317412.72076	150872.36827	1365.0
6	83.400717	317412.68959	150975.32531	1366.0
6	83.400717	317412.64828	151112.60181	1367.0
6	83.400717	317412.62794	151181.24029	1368.0
6	83.400717	317378.01058	151421.47033	1369.0
6	83.400717	317343.42433	151558.74111	1370.0
6	83.400717	317274.27200	151764.64687	1371.0
6	83.400717	317205.13881	151901.91420	1372.0
6	83.400717	317136.00498	152039.18255	1373.0
6	83.400717	317135.96169	152176.46885	1374.0
6	83.400717	317135.91758	152313.75582	1375.0
6	83.400717	317135.87398	152451.04456	1376.0
6	83.400717	317101.28313	152588.32885	1377.0
6	83.400717	317066.67988	152759.93744	1378.0
6	83.400717	317066.62399	152931.55359	1379.0
6	83.400717	317066.56459	153103.17760	1380.0
6	83.400717	317170.17344	153206.16839	1381.0
6	83.400717	317308.35317	153240.51367	1382.0
6	83.400717	317481.08067	153274.86428	1383.0
6	83.400717	317619.27113	153274.88455	1384.0
6	83.400717	317757.46162	153274.90488	1385.0
6	83.400717	317895.68416	153171.95015	1386.0
6	83.400717	317999.34733	153103.31628	1387.0
6	83.400717	318103.03072	152966.03397	1388.0
6	83.400717	318206.69232	152897.40211	1389.0
6	83.400717	318344.90860	152794.45527	1390.0
6	83.400717	318448.57717	152691.50438	1391.0
6	83.400717	318586.79809	152554.24443	1392.0
6	83.400717	318690.46351	152451.29624	1393.0
6	83.400717	318794.12870	152348.35026	1394.0
6	83.400717	318200.66142	147443.32078	0.0
6	83.400717	318272.06060	147276.36108	1.0
6	83.400717	318319.17093	147181.17362	2.0
6	83.400717	318320.29585	147133.61816	3.0
6	83.400717	318389.68700	147038.69290	4.0
6	83.400717	318436.59885	146943.90471	5.0

6	83.400717	318482.90611	146872.92710	6.0
6	83.400717	318522.60657	146792.69307	7.0
6	83.400717	318527.43528	146790.53863	8.0
6	83.400717	318550.83843	146777.78061	9.0
6	83.400717	318553.69101	146789.12564	10.0
6	83.400717	318553.66000	146926.37689	11.0
6	83.400717	318553.62940	147063.62848	12.0
6	83.400717	318553.59841	147200.87985	13.0
6	83.400717	318553.57579	147303.81891	14.0
6	83.400717	318518.99417	147475.37672	15.0
6	83.400717	318484.41344	147646.93452	16.0
6	83.400717	318380.77003	147715.53780	17.0
6	83.400717	318270.27157	147825.25296	18.0
6	83.400717	318270.74312	147782.30023	19.0
6	83.400717	318240.44851	147704.38850	20.0
6	83.400717	318241.13677	147642.10598	21.0
6	83.400717	318210.85485	147564.23863	22.0
6	83.400717	318195.97844	147501.97306	23.0
6	83.400717	318186.37873	147472.18379	24.0

# JOINT INVESTIGATION REPORT

INCIDENT NO: 1747111 JIV report S/N:

N: 0000320

**G. INCIDENT INFORMATION:**

**a. Impacted Area Details**

- Total calculated area of impact 98,900,000 m<sup>2</sup> (98.9 km<sup>2</sup>)
- Impact within R.O.W YES
- Impact outside R.O.W YES

**b. Volume of oil recovered before completion of JIV (V<sub>rec</sub>):**

Recovered oil V <sub>rec</sub> :	75	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

NIL	Barrels
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**c. Net Estimated Spilled Volume V<sub>EW</sub>(bbls)\* =**

4703.16 BBLs

**Estimated Reported Volume\*\* V<sub>ER</sub>(bbls)=**

4704 BBLs

**\*Notes:**

- Volume estimation was done using an excel based tool. (see attached for details on the calculation)
- Reported spilled volume is an estimate

Write other relevant notes taken into consideration for estimating the spilled in the box below:

THE ESTIMATED VOLUME OF OIL ON OPEN WATER WAS CALCULATED FROM VISUAL OVERFLIGHT DATA. THE DATA WAS COLLECTED BETWEEN 9<sup>TH</sup> NOVEMBER AND 2<sup>ND</sup> DECEMBER 2016.

Calculation of the respective estimated volume is to be done on site as far as practicable using the new spill volume estimation software on site.

Conversion of m<sup>3</sup> to barrels is Volume (m<sup>3</sup>) x 6.29; \*\*Round up estimated volume to next whole number using the following rules:

- Any spill volume in excess of 1 bbl is rounded up to the next whole number.
- Any spill volume in less than 1 bbl is rounded up to the next 0.1 bbl.

Examples: Calculated volume = 15.3 bbl ----- Reported volume = 16 bbl  
 Calculated volume = 0.35 bbl ----- Reported volume = 0.4 bbl  
 Calculated volume = 0.01 bbl ----- Reported volume = 0.1 bbl

Wherever this estimation tool is not applicable please refer to paragraph 6c (Deviations) of the JIV procedure to use appropriate steps for volume estimation; record the calculation in a plain sheet of paper and attach to the JIV report

# JOINT INVESTIGATION REPORT

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## d. General Status of the site

i. Joint investigation of the incident site found that there is no residual impact after the initial response and JIT therefore recommend that the site be closed out <input type="checkbox"/>
ii. Investigation of the incident site showed that there is residual impact on site requiring further works <input checked="" type="checkbox"/>

## e. Representatives

<p><b>This report was filled, agreed and signed by the following joint investigation team representatives:</b></p> <ul style="list-style-type: none"><li>• Host Community: <input checked="" type="checkbox"/></li><li>• Department of Petroleum Resources [DPR]: <input checked="" type="checkbox"/></li><li>• National Oil Spill Detection and Response Agency [NOSDRA]: <input checked="" type="checkbox"/></li><li>• State Ministry of Environment [SME]: <input checked="" type="checkbox"/></li><li>• Asset Owner: <input checked="" type="checkbox"/></li><li>• Signatories agree with reported findings: <input checked="" type="checkbox"/></li><li>• Separate DPR form has been filled out with same findings: <input checked="" type="checkbox"/></li></ul> <p style="text-align: right;"><i>Tick as applicable</i></p>
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# JOINT INVESTIGATION REPORT

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f. Appendix 1: Overview sketch of the site

