THE OFFSHORE OIL AND GAS EXPLORATION, PRODUCTION, UNLOADING AND STORAGE (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2020 (THE "REGULATIONS") - PUBLICATION OF 'FURTHER INFORMATION' ON THE VICTORY FIELD DEVELOPMENT UNDER REGULATION 12(7)

Victory Field Development Further Information

Part A: Introduction

Shell U.K. Limited ("Shell") has made an application, following the acquisition of Corallian Energy Limited ("CEL") in November 2022, for consent to the Oil and Gas Authority in relation to the above field development. The project is subject to the environmental impact assessment procedure under the Regulations. The environmental statement ("ES") is available at https://www.gov.uk/government/publications/victory-field-development and https://www.shell.co.uk/sustainability/reporting.html.

OPRED acting on behalf of the Secretary of State obtained or received further information from CEL on 11th October 2022 in response to 'specific comments' item numbered 4 in the notice sent to CEL on 12th September 2022 under Regulation 12(1) of the Regulations relating to the provision of the maximum wellhead production profile (the "Further Information"). OPRED considers that the Further Information ought to be made public because the information is directly relevant to reaching a conclusion on whether the project is likely to have a significant effect on the environment and has notified Shell under Regulation 12(3) of the Regulations accordingly. The Further Information is set out in Part C below and should be read subject to the clarifications in the commentary in Part B below.

Part B: Commentary

We would like to add the following clarification in relation to the Further Information:

In summary:

- The Further Information confirms a projected maximum wellhead recovery of 248.2 bcf gas and 25.6kTonnes condensate. This compares to a total backed-out recovery indicated in the July 2022 ES of 247.7bcf gas and 25.6kTonnes condensate. The difference between these two projections is negligible. The Further Information does not change the conclusions of the July 2022 environmental impact assessment presented in the ES.

It should be noted:

- The Further Information was originally provided to OPRED by CEL on 11th October 2022 in response to a Notice issued under Regulation 12(1). Clarifications have been added into the Further Information by Shell in square brackets to aid understanding.
- Following the acquisition of CEL by Shell, the developer of the Victory Field Development changed from CEL to Shell.
- The scope, design and cumulative production remain unchanged since the July 2022 ES and CEL response of 11th October 2022.
- The targeted start date within the ES, and reflected in the production profiles within the Further Information, was 2024. Shell now targets 2025. Given the lapsed period of time of one year, the first year for all production profiles within the Further Information should be read as being 2025.
- References in the Further Information to pages, tables, figures of the FDP, while correct on 11th October 2022, may have changed.
- The Further Information makes references to certain production profiles which show extended production from the Victory Field until 2037. For clarity, Shell's view is that it is unlikely to be technically feasible for production to continue beyond 2034 (where production commences, as targeted, in 2025).
- CEL stated in their 11th October 2022 response that the Further Information did not change the conclusions of the July 2022 environmental impact assessment. Shell is aligned with this view.

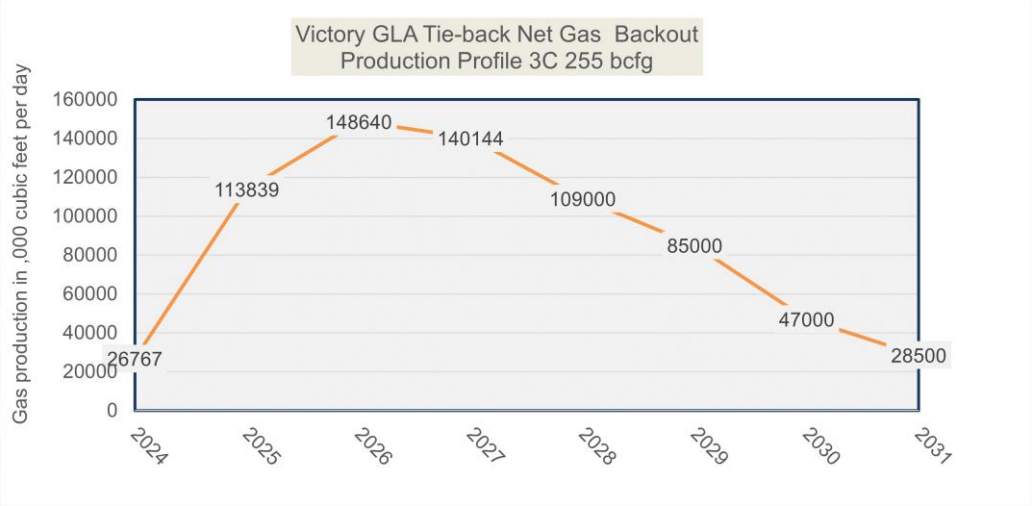
Part C: Further Information

***Specific Comment 4**: OPRED compared the production figures in the Environmental Statement (ES) and Field Development Plan (FDP) and contacted the North Sea Transition Authority (NSTA) to confirm if the Production Consent is based on the backed-out production profile as presented in the ES. The NSTA confirmed that the Production Consent is based on the wellhead profile, aligned to Page 34, Table 7 of the FDP. They queried the first year of production which is 390,684 kscm at a rate of 4341 kscm/d assuming a proposed production consent starts on 1st October 2024. OPRED informed the NSTA that the production profile presented in the ES is forecast until 2031 and the NTSA confirmed that, should consent be granted, it would be adjusted accordingly.*

As the information presented in the ES should have been based on the maximum wellhead recovery for oil and gas, not the backed-out production, the operator must review the information presented in the ES. Revised information must be presented to OPRED for it to re-assess the environmental impact of the Victory field development.

Current information from the Environmental Statement

The [backed-out] production profile for Victory's Environmental Statement presented in Figure 3.18 (page 3-25) shows the predicted P10 (maximum) case for daily production rates of gas from the Victory reservoir over an eight-year period from 2024 to 2031 (beyond which further recovery is not technically feasible), which corresponds to the maximum production expected throughout the life of the field considering that in the initial years there is a significant reduction in the flow rate of the [Greater Laggan Area] GLA fields into the system ('backed-out production').



[Environmental Statement] Figure 3.18: Victory [maximum backed-out] daily gas production profile

The cumulative production for the Victory Field is also presented in Table 3.12 (page 3-26) of the Environmental Statement, showing that the cumulative gas production is 247,733,925 Mscf (7,015,032,185 scm), with a cumulative condensate production of 39,417 scm (25,624 tonnes).

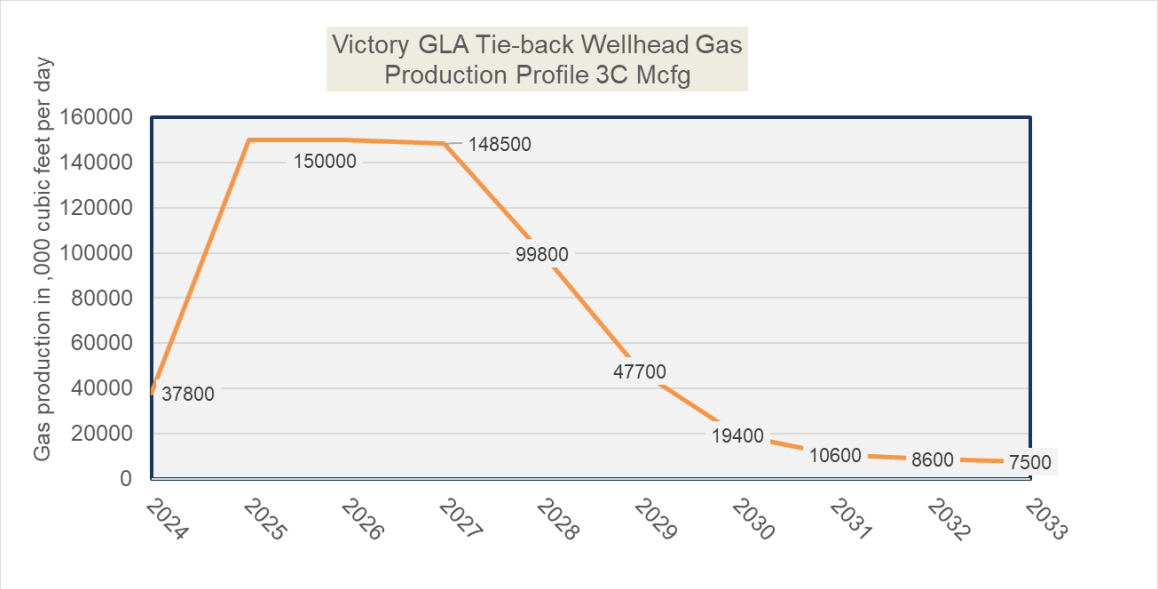
Year	Days of Production	Gas Production Rate (Mscf/d)	Gas Production Rate (scm/d)	Cumulative Gas Production (Mscf)	Cumulative Gas Production, (scm)	Condensate Production Rate (scm/d)	Condensate Production Rate (tonnes/d)	Cumulative Condensate Production (scm)	Cumulative Condensate Production (tonnes)
2024	90	26,767	757,956	2,409,030	68,216,040	4.26	2.77	383	249
2025	365	113,839	3,223,556	43,960,265	1,244,813,980	18.1	11.77	6,990	4,545
2026	365	148,640	4,209,009	98,213,865	2,781,102,265	23.63	15.36	15,615	10,152
2027	365	140,144	3,968,430	149,366,425	4,229,579,215	22.28	14.48	23,747	15,437
2028	365	109,000	3,086,531	189,151,425	5,356,163,030	17.33	11.27	30,073	19,551
2029	365	85,000	2,406,928	220,176,425	6,234,691,750	13.52	8.78	35,007	22,755
2030	365	47,000	1,330,890	237,331,425	6,720,466,600	7.47	4.86	37,734	24,529
2031	365	28,500	807,029	247,733,925	7,015,032,185	4.61	3	39,417	25,624
Total:				**247,733,925**	**7,015,032,185**			**39,417**	**25,624**

[Environmental Statement] Table 3.12: Victory field [maximum backed-out] production profile [figures] (P10)

Revised information

The revised production profile, representing the maximum wellhead recovery, is presented in [REVISED] Figure 3.18 (below). This shows the predicted P10 (3C or maximum) case for daily wellhead production rates of gas from the Victory reservoir over a ten-year period from 2024 to 2033, This is aligned with Figure 18 (page 33) of the Victory FDP and recovers approx. 248 bcfg by the end of 2033. Note that Table 7 (page 34) of the Victory FDP extends the profile further still, to 2037, (consistent with the fields' standard economic template for the 3C case), but beyond the technically feasible minimum production rate for the pipeline).

In this [maximum well head recovery] P10 (3C) case, daily gas and condensate production from the Victory development is expected to peak soon after first gas, at a rate of 4.248 million cubic metres (150 million cubic feet) of gas per day and 23.85 cubic metres (15.5 tonnes) of condensate per day (both assume 0% facilities downtime). After around four years of production, gas and condensate production is expected to begin to decline (see REVISED Table 3.12 [below]). Significant formation water production is not anticipated.



REVISED Figure 3.18 – aligned with Figure 18 (Page33) of the Victory FDP [Victory maximum well head daily gas production profile]

The revised [maximum well head] cumulative production for the Victory Field is presented in [REVISED] Table 3.12 (below), showing that the cumulative gas production is 248,163,500 Mscf (7,027,244,915 scm) with a cumulative condensate production of 39,409 scm (25,616 tonnes). As mentioned above, this is aligned with Figure 18 (page 33) of the Victory FDP. Note that Table 7 (page 34) of the Victory FDP extends the profile further still, to 2037, (consistent with the fields' standard economic template for the 3C case), but beyond the technically feasible minimum production rate for the pipeline).

Year	Days of Production	Gas Production Rate (Mscf/d)	Gas Production Rate (scm/d)	Cumulative Gas Production (Mscf)	Cumulative Gas Production (scm)	Condensate Production Rate (scm/d)	Condensate Production Rate (tonnes/d)	Cumulative Condensate Production (scm)	Cumulative Condensate Production (tonnes)
2024	90	150,000	4,247,550	13,797,000	390,689,598	23.85	15.50	2,147	1,396
2025	365	150,000	4,247,550	68,547,000	1,941,045,146	23.85	15.50	10,852	7,054
2026	365	150,000	4,247,550	123,297,000	3,491,400,695	23.85	15.50	19,557	12,712
2027	365	148,500	2,826,037	177,499,500	5,026,252,687	23.61	15.35	28,175	18,314
2028	365	99,800	1,350,721	213,926,500	6,057,755,912	15.87	10.31	33,966	22,078
2029	365	47,700	549,350	231,337,000	6,550,768,976	7.58	4.93	36,734	23,877
2030	365	19,400	300,160	238,418,000	6,751,281,627	3.08	2.00	37,860	24,609
2031	365	10,600	243,526	242,287,000	6,860,840,086	1.69	1.10	38,475	25,009
2032	365	8,600	212,378	245,426,000	6,949,727,137	1.37	0.89	38,974	25,333
2033	365	7,500	189,724	248,163,500	7,027,244,915	1.19	0.78	39,409	25,616
Total:				**248,163,500**	**7,027,244,915**			**39,409**	**25,616**

REVISED Table 3.12 – consistent with Table 7 (page 34) of the Victory FDP to 2033. [Victory Field maximum well head production figures.]

ES consideration based on revised production information:

[Comparison [table below] of] the backed-out production profile (as presented in the ES) [with] the revised wellhead production profile (presented herein), reveals a negligible difference in the cumulative total production of both gas (< 0.2%) and condensate (< 0.1%) for Victory. CEL therefore considers that the profiles used in the ES still effectively represent the worst-case scenario from a production perspective to the end of technically feasible production (2033).

Cumulative Production	Cum Gas Prod (Mscf)	Cum Gas Prod (scm)	Cum Cond Prod (scm)	Cum Cond Prod (tonnes)
ES Data (Max. backout prodution)	247,733,925	7,015,032,185	39,417	25,624
Revised Data (Max. wellhead production)	248,163,500	7,027,244,915	39,409	25,616
Total Difference (ES vs Revised)	429,575	12,212,730	-8	-8
Difference in %	Increase < 0.2%	Increase < 0.2%	Decrease < 0.1%	Decrease < 0.1%

Impact on CO2 Emissions:

When considering the impact on CO2 emissions associated with the revised production data discussed above, CEL confirms that these changes have no impact on the atmospheric emissions associated with the combustion of hydrocarbons for power generation on the [Modular Drilling Unit] MODU, or vessel and helicopter movements during the development drilling of the Victory field, as well as the flaring of hydrocarbons during the well flow test (as the duration of the well has not changed). Equally, there is no difference to the previously reported emissions associated with installation and decommissioning operations.

As described in the ES, gas from the Victory field will be processed at the Shetland Gas Plant (SGP) with processing equipment and support facilities shared with several other producing assets. This minimises the incremental energy demand caused by the Victory development. As the SGP is located onshore, the emissions arising at the SGP, as a result of the Victory development, are therefore understood to be outside of the scope of the ES.