



Amendment Notice # 1

Licence Number L7276/1996/11

Licence Holder Murrin Murrin Operations Pty Ltd

ACN 076 717 505

File Number: 2011/011705

Premises Murrin Murrin Nickel Cobalt Project

Legal description –

Mining tenements M39/446, M39/820, L39/81, L39/62, L39/83, M39/299, M39/651, M39/300, M39/301, M39/435, M39/436, M39/421, M39/422, M39/423, M39/424, M39/342, M39/434, L39/136, L39/168, M39/314, M39/322, M39/562, M39/637, M39/686, M39/692, M39/714, M39/715, M39/716, M39/737 Laverton WA 6440

Date of Amendment 16 October 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.



Tim Gentle

Manager Licensing – Resource Industries

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in

	force prior to the commencement of and during this Review
Licence Holder	Murrin Murrin Operations Pty Ltd
m ³	cubic metres
mbgl	Metres below ground level
MS	Ministerial Statement
mtpa	million tonnes per annum
MMN	Murrin Murrin North
MME	Murrin Murrin East
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
RIWI Act	Rights in Water and Irrigation Act 1914
TSF	Tailings Storage Facility

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment Category 6 mine dewatering.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (November 2016)*
- *Guidance Statement: Risk Assessment (November 2016)*

Amendment description

Dewatering Application

Murrin Murrin Operations Pty Ltd (MMO) (the Licence Holder) submitted an application to amend licence L7276/1996/11 on 17 May 2017. The Licence Holder is proposing to dewater 15 pits at Murrin Murrin East (MME) mining area for the mining of ore. The water removed from the pits will be discharged into the existing pit voids at MME. MME mining area is currently outside of the existing prescribed premises boundary, therefore this application is also seeking to extend the prescribed premises boundary.

MMO currently uses water abstracted from open pits at MME for dust suppression along the 45km long MME haul road. Water is pumped from the pits to four HDPE lined turkeys nests which are located at various intervals along the haul road.

As the development of open pits extends closer to Lake Carey, mining will extend further below the groundwater table due to the increasingly shallow groundwater levels near the lake. As such, MMO will be required to dispose of groundwater in excess of its dust suppression requirements.

The licence Holder is proposing to progressively install a dewatering pipeline network to allow for the discharge of groundwater to existing open pit voids. The pits MMO is proposing to discharge to (and as shown in Figure 11):

- 2101
- 2302
- 2303
- 2402
- 2501/2502
- 2603
- 2704

Groundwater abstraction will only occur from pits that are being actively mined. Once mining of the pit has finished, dewatering of that pit will also cease.

MMO are proposing to install the dewatering network progressively over five years in seven stages, in conjunction with the open pit development schedule and to dewater up to 182,500kL per year for the next five years.

Water Quality:

Groundwater salinity in the area is variable ranging from 1,100mg/L in bore EP02 increasing closer to Lake Carey up to 110,000 mg/L in bore EP38. Aquaterra (2007) hydrogeological investigation found that the hydraulic conductivity over the 2101 pit and the 23 pit series is low.



This Amendment Notice will therefore include:

1. Amendment of prescribed premises boundary, including the addition of mining tenements; and
2. Addition of Category 6 (mine dewatering).

Table 2 below outlines the proposed changes to the throughput capacity Licence

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Table 2: Proposed design or throughput capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
6	N/A	182,500kl/ year	Addition of Category 6 for dewatering

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

Table 3: Relevant approvals

Legislation	Number	Approval
Part IV of the <i>Environmental Protection Act 1986</i>	MS 444 granted 5 May 1997 MS 445 granted 5 June 1996 MS 506 granted 31 May 1999	<i>Nickel-cobalt ore mining and processing (alternative sites), Murrin Murrin, 60km east of Leonora.</i> <i>Nickel-cobalt ore mining and processing (first proposal) Murrin Murrin 60km east of Leonora.</i> <i>Stage 2 expansion, 60km east of Leonora.</i> <i>The Dewatering (this amendment notice) will mostly utilize existing cleared areas, resulting in only minor clearing of 03.46ha for the pipeline corridor. Clearing for development at MME has been previously approved under MS506 and the Mining Act.</i>
<i>Mining Act 1978</i>		<i>Mining proposal</i>
<i>Rights in Water and Irrigation Act 1914</i>	GWL 98841(4)	<i>Groundwater abstraction licence for of 1,000,000kL.</i>

Amendment history

Table 4 provides the amendment history for L7276/1996/11 and related Works Approvals.

Table 4: Works approval and Licence history

Instrument	Issued	Amendment
L7276/1996/11	5/06/2013	Licence reissue
W5641/2014/1	29/05/2014	Works Approval for construction of in-pit TSF 2/2-2/4, 8/4 & 9/2.
L7276/1996/11	4/6/2015	Licence amendment to allow in-pit TSFs including REFIRE conversion and removal of sulfur dioxide limits.
W5641/2014/1	29/05/2014	Amended: 26 June 2017 for the establishment of an additional three in-pit Tailings Storage Facilities (TSF) at Murrin Murrin North. Including extending the existing support infrastructure (tailings and decant return pipelines) to allow for the operation of the additional TSFs.

L7276/1996/11	16/10/2017	Amended: 16/10/2017 This Amendment is <ol style="list-style-type: none"> 1. Amendment of prescribed premises boundary, including the addition of mining tenements; and 2. Addition of Category 6 (mine dewatering).
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Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Yundamindra Homestead	~18 Kilometers south of the MME mining area

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 6: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
RIWI Act – Goldfields Groundwater Area	Within premises boundary
Hydrography, linear – Lake Carey	Within premises boundary, MME is located on the north-western edge of Lake Carey.
Groundwater TDS 50,000 mg/L – 100,000 mg/L (central to eastern portion of MME)	Centre of the site – 36 mbgl East of the site – 2 mbgl to 7 mbgl
Groundwater TDS 1,600 mg/L (west portion of MME)	16-18 mbgl
Threatened / Priority Flora	Priority 1 - <i>Tecticornia mellarium</i> 1.2km east of the 2606 pit. Priority 3 <i>Eremophila annosocaulis</i> – 1.6km west of pit 2101
Threatened / Priority Fauna	No significant fauna species listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) or the <i>Wildlife Conservation Act 1950</i> have been identified within the area of the proposed new infrastructure. An individual Malleefowl was observed during both surveys to the west of MMO tenements. The Malleefowl is listed as Vulnerable under the EPBC Act. Individual birds were observed in Mulga woodland on sandy-loams approximately 10 km to the west of the MME tenements. Peregrine Falcon listed as a Priority 4 species under the <i>Wildlife Conservation Act 1950</i> , was noted during the surveys. Peregrine Falcons are highly mobile species that regularly traverse large areas of habitat. In all cases the observed birds were noted only once and the lack of regular observations suggests that MME is used sporadically.

TEC/PEC	<p>Mount Morgan Calcrete, Priority 1, approximately 25km</p> <p>Mount Jumbo Range vegetation, Priority 3 approximately 26km.</p>
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Risk assessment

Table 7 and Table 8 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 7: Risk assessment for proposed amendments during construction

Source/Activities	Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts						
Cat 6 Mine dewatering	Dust: Associated with construction of dewatering discharge pumps and pipeline network.	No residents or sensitive receptors in close proximity	Air: Particulate matter (dust)	Health and amenity impacts	N/A	N/A	N/A	The closest sensitive receptor is located at Yundamindra homestead that is approximately 18km south of MME mining area. No credible risk of dust impacts.		
	Noise: Associated with construction of dewatering pumps and pipeline network.	No residents or sensitive receptors in close proximity	Air / wind dispersion	Health and amenity impacts	N/A	N/A	N/A	The closest sensitive receptor is located at Yundamindra homestead that is approximately 18km south of MME mining area. No credible risk of noise impacts.		
	Clearing of vegetation	Native vegetation	Direct	Removal of vegetation				Clearing for development at MME has been previously approved under Ministerial Statement 506 and the Mining Act 1978		

Table 8: Risk assessment for proposed amendments during operation

Source/Activities	Risk Event					Likelihood rating	Risk	Reasoning
	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts	Consequence rating			
<p>Cat 6 Mine dewatering</p> <p>Dewatering discharge to existing pit voids at MME</p>	<p>Waste: Discharge to pit voids, increasing salinity due to evapo-transpiration</p>	<p>Groundwater-RIWI Act Goldfields Groundwater area. Native vegetation located on the Premises and in the local vicinity of the infrastructure (Including P1 1.2km east of pit 2606 and P3 1.6km west of 2101)</p>	<p>Seepage through soil.</p>	<p>Reduced quality of groundwater. Mounding of the water table in the vicinity of the discharge leading to inundation of the root zone of surrounding vegetation.</p>	<p>Moderate</p>	<p>Possible</p>	<p>Medium</p>	<p>As outlined in Aquaterra (2007) hydrogeological investigation:</p> <ul style="list-style-type: none"> The discharge of groundwater to open pits may lead to an increase in salinity, this will have minimal impacts on areas with high TDS. Given the groundwater quality near pit 2101 is marginal to brackish, there is a potential for an increase in salinity. However the hydraulic conductivity is low and therefore the impact is likely to be localised. <p>Given the amount of water to be discharged per year, groundwater mounding is not expected to be significant. Dewater discharge will be managed so that levels do not rise above 4m below the lowest point of the pit crest.</p>

<p>Native vegetation located on the Premises and in the local vicinity of the infrastructure (Including P1 1.2km east of pit 2606 and P3 1.6km west of 2101)</p>	<p>Direct discharge</p>	<p>Decline / death of vegetation</p>	<p>Moderate</p>	<p>Possible</p>	<p>Medium</p>	<p>Licence Holder's controls:</p> <ul style="list-style-type: none"> • Construction of a 500mm deep v-drain for the entire length of pipeline network. • Installation of meters at all discharge points capable of recording the cumulative quantity of water discharged to each pit. • Minimum freeboard of >4m maintained for pits. • Minimum freeboard of 300mm for MME main turkeys nest. • MME main turkeys nest has HDPE lining to prevent seepage into the rooting zone. • Turkeys nest has a spill way in the event of over topping. • 12 hourly inspections of the pipeline network will be undertaken for leaks, spills and integrity of the pipeline and bunding.
<p>Transport of dewater by pipeline from pit to pit</p>	<p>Waste: Ruptured, failure or leak of dewatering pipeline resulting in uncontrolled discharge to the environment.</p>	<p>Contamination of surrounding soils and creeks</p>	<p>Moderate</p>	<p>Possible</p>	<p>Medium</p>	<p>Direct discharge and seepage</p>
<p>Surface water Lake Carey ~500m from dewater infrastructure</p>	<p>And a number of minor creeks are adjacent to the infrastructure.</p>	<p>Contamination of surrounding soils and creeks</p>	<p>Moderate</p>	<p>Possible</p>	<p>Medium</p>	<p>Direct discharge and seepage</p>

Decision

The Delegated Officer has determined that the key emissions associated with the dewatering discharge to the open void pits is dewatering discharged to groundwater, and accidental discharge of saline dewatering to land from overtopping and pipeline failure.

The Delegated Officer has included new conditions and amended existing conditions in the licence for:

- Construction of infrastructure (see condition 1.3.12)
- Management controls including water levels in all pits receiving discharge will be managed to maintain a freeboard of 4m (see condition 1.3.13)
- Management controls including – limiting discharge to 2101 from similar quality sources namely 2104, 2103, 2106 and 2201 pits. MMO will not discharge water from the more saline pits in the eastern area of MME to the 2101 pit (see condition 1.3.13).

Other Amendments

The Delegated Officer has also made changes to the Licence in accordance with administrative changes.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 30 August 2017. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. Prescribed premises category table of the Licence is amended by the insertion of the red bold text shown below:

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
5	Processing or beneficiation of metallic or non-metallic ore	50 000 tonnes or more per year	5 000 000 tonnes per annual period
6	Mine Dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore	50 000 tonnes or more per year	182 500 tonnes per year
12	Screening, etc. of material	50 000 tonnes or more per year	1 500 000 tonnes per annual period
31	Chemical manufacturing	100 tonnes or more per year	1 718 100 tonnes per annual period
44	Metal smelting or refining	1 000 tonnes or more per year	55 000 tonnes per annual period
52	Electric power generation	20 MW or more in aggregate	87.5 MW in aggregate
54	Sewage facility	100 m ³ or more per day	300 m ³ per day
64	Class II or III putrescible landfill site	20 tonnes or more per year	5 000 tonnes per annual period

2. The Licence is amended by the insertion of Condition 1.3.12 as shown below:

1.3.12 The Licence Holder must ensure that infrastructure and equipment specified in Column 1 of Table 1.3.5 is constructed / installed in accordance with the requirements specified in Column 2 of Table 1.3.5.

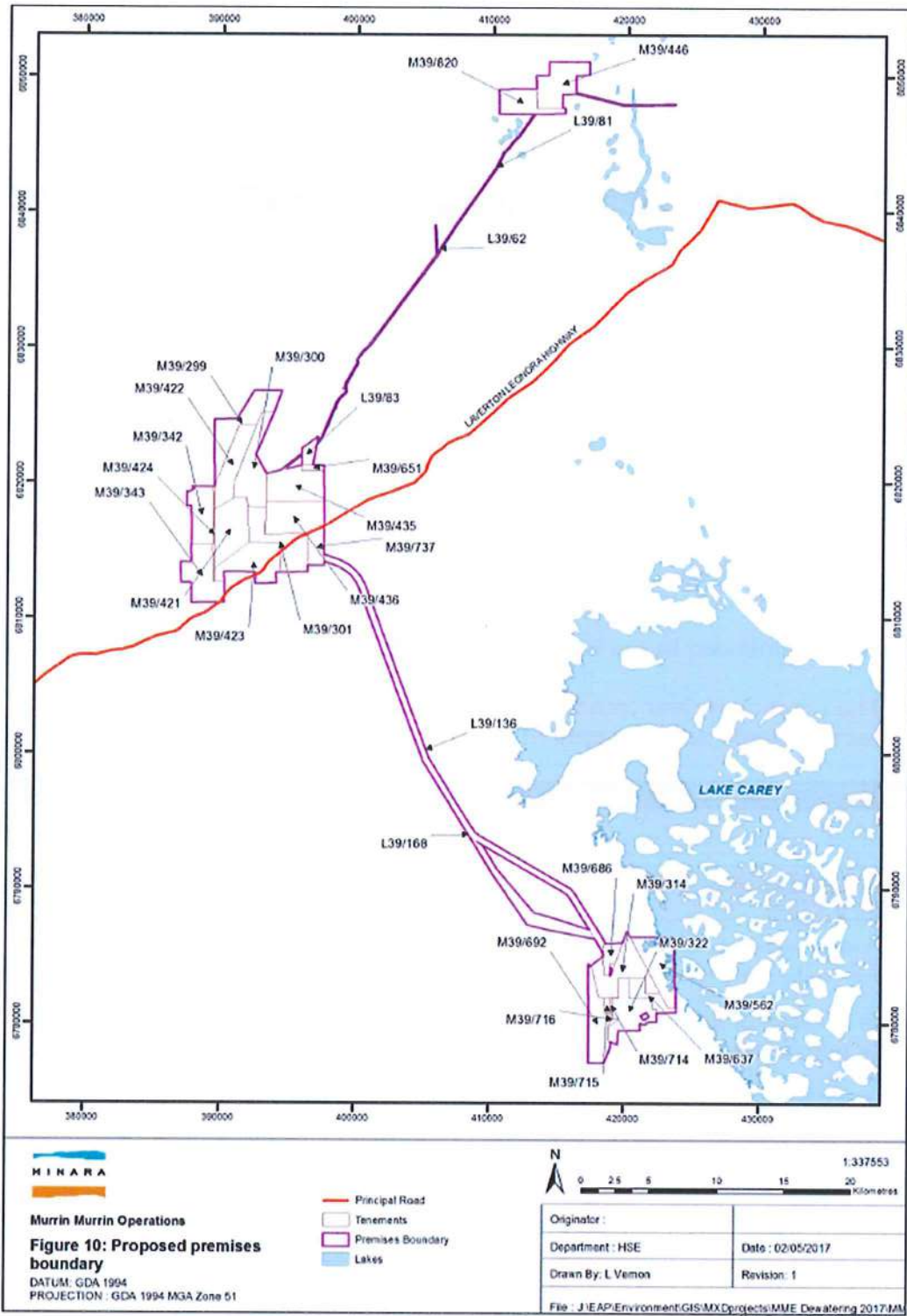
Table 1.3.5: Construction Requirements	
Column 1	Column 2
Infrastructure/Equipment	Requirements (design and construction)
Dewatering pipeline infrastructure	<p>Construction of a 500mm deep v-drain bund for the entire length of pipeline network.</p> <p>Construction of pipeline consisting of PN8 rated 160mm diameter poly pipeline rising from the pits to a main trunk line of PN10 rated 250mm diameter pipeline from the risers to the discharge pits.</p> <p>Installation of meters at all discharge points capable of recording the cumulative quantity of water discharged to each pit.</p>

3. The Licence is amended by the insertion of Condition 1.3.13 as shown below:

1.3.13 The Licence Holder must ensure that the dewatering operational requirements are managed in accordance with Table 1.3.6.

Table 1.3.6: Dewatering operational requirements	
Column 1	Column 2
Pits	Operational requirements
All discharge pits (2101, 2303, 2302, 2402, 2501, 2502, 2603 & 2704)	Minimum freeboard of 4m to be maintained
Pit 2101	Only accept dewater discharge from source pits 2104, 2103, 2106 & 2201.

4. Schedule 1: Maps of the Licence is amended by the insertion of the revised Premises map. The purple line depicts the Premises boundary:



Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L7276/1996/11 – Murrin Murrin Nickel Cobalt Project	L7476/1996/11	accessed at www.dwer.wa.gov.au
2	Works Approval W5641/2014/1 – Murrin Murrin Nickel Cobalt Project	W5641/2014/1	accessed at www.dwer.wa.gov.au
4	Ministerial Statement 506	MS 506	accessed at www.epa.wa.gov.au/
5	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
6	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	DER 2015b	
7	DER, August 2016. <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth.	DER 2016a	
8	DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	DER 2016b	
9	DER, November 2016. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	DER 2016c	
10	Murrin Murrin East Dewatering – Licence Amendment Application, July 2017	Amendment Application, July 2017	DWER records (A1474668)
11	Aquaterra Hydrogeology & Dewatering Assessment Report, Murrin Murrin East	Aquaterra 2007	DWER records (A1474668)

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 30 August 2017 for review and comment. The Licence Holder responded on 7 September 2017 waiving the remaining comment period. The following comments were received on the draft Amendment Notice.

Condition	Summary of Licence Holder comment	DWER response
N/A	Incorrect licence number referenced on first page of the letter and page 5 of the licence and the removal of the In-Pit TSF conditions.	Updates have been included in the final instrument.