Substance: Mirfentanil

Based on the current information available to the Office of Controlled Substances, it appears that the above substance is:

- Controlled  X
- Not Controlled  ☐

under the schedules of the *Controlled Drugs and Substances Act* (CDSA) for the following reason(s):

- The substance is a derivative of fentanyl and is included under item 16 of Schedule I to the CDSA.

Prepared by: ___________________________  Date: ________________
Zack Li

Verified by: ___________________________  Date: ________________
Mark Kozlowski

Approved by: ___________________________  Date: ________________
DIRECTOR, OFFICE OF CONTROLLED SUBSTANCES

This status was requested by: Evelina Rutkowski, OCS
Drug Status Report

Drug: Mirfentanil

Drug Name Status: Mirfentanil is the INN name.

Chemical Name: 2-Furancarboxamide, N-(1-(2-phenylethyl)-4-piperidinyl)-N-pyrazinyl-

Other Names: Mirfentanilum

Chemical structure:

![Chemical Structure Diagram]

Molecular Formula: C_{22}H_{24}N_{4}O_{2}

Pharmacological class / Application: Fentanyl

CAS-RN: 117523-47-4

International status:

US: Mirfentanil is not listed specifically in the Schedules to the US Controlled Substances Act and is not mentioned anywhere on the DEA website.

United Nations: The substance is not listed on the Yellow List - List of Narcotic Drugs under International Control, the Green List - List of Psychotropic Substances under International Control, nor the Red List - List of Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances under International Control.

Canadian Status: Mirfentanil is not currently listed in the CDSA. The substance has been reported in the scientific literature to be a derivative of fentanyl\(^1\) which is currently listed as item 16 of Schedule I to the CDSA under the heading “Fentanyl, their salts, derivatives, and analogues and salts of derivatives and analogues, including.” A review of the current family of fentanyls revealed that substances included under item 16 of Schedule I to the CDSA all contain the following root structure:

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R=ethyl group substituted variously at the 1 and 2 position
R₁=hydrogen, methoxymethyl or carboxylate alkyl ester
R₂=phenyl or substituted phenyl
R₃=alkyl
R₄=hydrogen or alkyl

Note, however, that the pharmacological activities of the substances were not considered in the earlier reviews.

According to above root structure, mirfentanil would be considered to contain all the essential structural elements. Given that the substance contains the core structure of the fentanyls and is also a derivative of fentanyl, mirfentanil must be included under the heading “Fentanyls, their salts, derivatives, and analogues and salts of derivatives and analogues, including” of item 16 of Schedule I to the CDSA.

**Recommendation:** Mirfentanil is included in item 16 of Schedules I to the CDSA and is a controlled substance.

**Date:** June 18, 2012.