Approval Date: April 23, 2007

FREEDOM OF INFORMATION SUMMARY

ORIGINAL ABBREVIATED NEW ANIMAL DRUG APPLICATION

ANADA 200-436

NOROMECTIN Plus Injection for Cattle
ivermectin and clorsulon

Indications for use: For the treatment and control of internal parasites, including adult liver flukes, and external parasites in cattle.

Sponsored by:

Norbrook Laboratories, Ltd.

FREEDOM OF INFORMATION SUMMARY

1. GENERAL INFORMATION:

a. File Number:	ANADA 200-436
b. Sponsor:	Norbrook Laboratories, Ltd. Station Works Newry BT35 6JP Northern Ireland Drug Labeler Code: 055529
US Agent:	Norbrook, Inc. Bill Zollers, Ph.D. Directory of Regulatory Affairs – USA & Canada 9733 Loiret Boulevard Lenexa, KS 66219
c. Established Name:	Ivermectin and Clorsulon
d. Proprietary Name:	NOROMECTIN Plus Injection for Cattle
e. Dosage Form:	Sterile solution
f. How Supplied:	50 mL and 100 mL rubber-capped bottles; 250 mL and 500 mL rubber-capped bottles designed for use with automatic syringe equipment.
g. How Dispensed:	OTC
h. Amount of Active Ingredients:	10 mg/mL (1%) of ivermectin and 100 mg/mL (10%) of clorsulon
i. Route of Administration:	Injection
j. Species/Class:	Cattle. Exception: Not approved for use in lactating dairy cattle or pre-ruminant calves.
k. Recommended Dosage:	1 mL per 110 lbs (50 kg) of body weight, or 200 mcg ivermectin and 2 mg clorsulon per kg, given subcutaneously behind the shoulder.

l. Pharmacological Category: Parasiticide

m. Indications: NOROMECTIN Plus Injection for Cattle is indicated for the effective treatment and control of the following parasites in cattle:

Gastrointestinal Roundworms (adults and fourth-stage larvae):
Ostertagia ostertagi (including inhibited *O. ostertagi*)
O. lyrata
Haemonchus placei
Trichostrongylus axei
T. colubriformis
Cooperia oncophora
C. punctata
C. pectinata
Bunostomum phlebotomum
Nematodirus helvetianus (adults only)
N. spathiger (adults only)
Oesophagostomum radiatum

Lungworms (adults and fourth-stage larvae):
Dictyocaulus viviparus

Liver Flukes:
Fasciola hepatica (adults only)

Cattle Grubs (parasitic stages):
Hypoderma bovis
H. lineatum

Sucking Lice:
Linognathus vituli
Haematopinus eurysternus
Solenopotes capillatus

Mange Mites (cattle scab):
Psoroptes ovis (syn. *P. communis* var. *bovis*)
Sarcoptes scabiei var. *bovis*

	Persistent Activity Ivermectin and clorsulon injection has been proved to effectively control infections and to protect cattle from reinfection with *Dictyocaulus viviparus* and *Oesophagostomum radiatum* for 28 days after treatment; *Ostertagia ostertagi, Trichostrongylus axei, Cooperia punctata* for 21 days after treatment; *Haemonchus placei* and *Cooperia oncophora* for 14 days after treatment.
n. Pioneer Product:	IVOMEC Plus Injection for Cattle; ivermectin and clorsulon; NADA 140-833; Merial, Ltd.

2. TARGET ANIMAL SAFETY AND DRUG EFFECTIVENESS:

Under the provisions of the Federal Food, Drug, and Cosmetic Act, as amended by the Generic Animal Drug and Patent Term Restoration Act (GADPTRA) of 1988, an Abbreviated New Animal Drug Application (ANADA) may be submitted for a generic version of an approved new animal drug (pioneer product). New target animal safety and effectiveness data and human food safety data (other than tissue residue data) are not required for approval of an ANADA.

Ordinarily, the ANADA sponsor is required to show that the generic product is bioequivalent to the pioneer, which has been shown to be safe and effective. If bioequivalence is demonstrated through a clinical endpoint study, then a tissue residue study to establish the withdrawal time for the generic product should also be conducted. For certain dosage forms, the agency will grant a waiver from the requirement of an *in vivo* bioequivalence study (55 FR 24645, June 18, 1990; Fifth GADPTRA Policy Letter; Bioequivalence Guideline, October 9, 2002).

Based on the formulation characteristics of the generic product, Norbrook Laboratories, Ltd. was granted a waiver from the requirement of an *in vivo* bioequivalence study for the generic product NOROMECTIN Plus Injection for Cattle (ivermectin and clorsulon). The generic product is administered as a sterile solution, contains the same active ingredients in the same concentration and dosage form as the pioneer product, and contains no inactive ingredients that may significantly affect the absorption of the active ingredient. The pioneer product, IVOMEC Plus Injection for Cattle (ivermectin and clorsulon), the subject of Merial, Ltd., NADA 140-833, was approved on September 17, 1990.

3. HUMAN SAFETY:

- **Tolerances for Residues:**

  The tolerance established for the pioneer product applies to the generic product. Tolerances of 100 parts per billion (ppb) and 10 ppb are established for 22, 23-dihydroavermectin B_1a (marker residue) in the liver (target tissue) and muscle, respectively, of cattle under 21 CFR 556.344. The Acceptable Daily Intake (ADI) for total residues of ivermectin is 1 microgram per kilogram of body weight per day. Tolerances of 1 part per million (ppm) and 0.1 ppm are established for parent clorsulon (marker residue) in the kidney (target tissue) and muscle, respectively, of cattle under 21 CFR 556.163. The Acceptable Daily Intake (ADI) for total residues of clorsulon is 8 micrograms per kilogram of body weight per day.

- **Withdrawal Times:**

  Because a waiver of the *in vivo* bioequivalence study was granted, the withdrawal times are those previously assigned to the pioneer product.

  The withdrawal time of 49 days has been established for ivermectin and clorsulon in cattle for slaughter (21 CFR 522.1193). A withdrawal period for milk has not been established, and a withdrawal period for pre-ruminating calves has not been established.

- **Regulatory Method for Residues:**

  The analytical methods for detection of ivermectin in tissues are HPLC methods with fluorescence detection. The analytical method for detection of clorsulon in tissues is UV-LC Finish or Determinative Assay. These methods are found on file at the Center for Veterinary Medicine, 7500 Standish Place, Rockville, MD 20855.

4. AGENCY CONCLUSIONS:

This ANADA submitted under section 512(b) of the Federal Food, Drug, and Cosmetic Act satisfies the requirements of section 512(n) of the act and demonstrates that the injectable product NOROMECTIN Plus Injection for Cattle, when used under its proposed conditions of use, is safe and effective for its labeled indications.

5. ATTACHMENTS:

Facsimile generic labeling and currently approved pioneer labeling are attached as follows:

Generic Labeling for ANADA 200-436:
NOROMECTIN Plus Injection for Cattle (ivermectin and clorsulon) – container and carton label – 50 mL, 100 mL, 250 mL, 500 mL; insert

Pioneer Labeling for NADA 140-833:
IVOMEC Plus Injection for Cattle (ivermectin and clorsulon) – container and carton label – 50 mL, 200 mL, 500 mL; insert