

ФЕДЕРАЛЬНОЕ АГЕНСТВО ПО ОБРАЗОВАНИЮ

ГОУВПО ВГТА

394000, г. Воронеж,
пр. Революции, 19,
Тел. (8-4732) 55-35-00
Факс (8-4732) 55-42-67 - 55-38-56
Эл. почта: post@vgta.vrn.ru
ИНН 3666026776



VSAT

19 Revolution Avenue
394000 Voronezh, Russia
ph. (8-4732) 55-35-00,
fax (8-4732) 55-42-67 - 55-38-56
e-mail: post@vgta.vrn.ru
Fiscal Code: 3666026776

ГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ
ВОРОНЕЖСКАЯ ГОСУДАРСТВЕННАЯ ТЕХНОЛОГИЧЕСКАЯ АКАДЕМИЯ
VSAT - VORONEZH STATE ACADEMY OF TECHNOLOGY

Doct. Svetlana B. Zueva - Department of Ecology

sveta@zz.vrn.ru

Voronezh, 20th October 2010

Messrs

ECORECYCLING, L'Aquila, Italy – Attention: Prof. Ing. Francesco Vegliò

SCANGEA, Rome, Italy – Attention: Ing. Luigi Cesare Speranza

Subject: RUSSIAN AGRO.INDUSTRIAL COMPANY – LIPETZK PIG FARM, WASTE TREATMENT PLANT

Dear Sirs,

Following our recent discussions I am hereby confirming that the RUSSIAN AGRO-INDUSTRIAL CO. has requested us to submit a Pre-Feasibility Study / Preliminary Quotation for a waste treatment facility to upgrade their Lipetzk pig farm. This documentation shall be used by the RUSSIAN AGRO INDUSTRIAL CO. to obtain financing from the Federal Government for their upgrading program.

It is understood that upon receiving of the funds from the Federal Government, the RUSSIAN AGRO-INDUSTRIAL CO. shall appoint the VSAT-ECORECYCLING/SCANGEA Joint Venture as the EPC (Engineering+Procurement+Construction) Contractor for the realization of the new facility.

Information about the Lipetzk pig farm is shown in following pages. I trust that this shall be of interest for you.

Truly Yours,

Svetlana B. Zueva

VSAT – Department of Ecology

ФЕДЕРАЛЬНОЕ АГЕНСТВО ПО ОБРАЗОВАНИЮ

ГОУВПО ВГТА

394000, г. Воронеж,
пр. Революции, 19,
Тел. (8-4732) 55-35-00
Факс (8-4732) 55-42-67 - 55-38-56
Эл. почта: post@vgta.vrn.ru
ИНН 3666026776



VSAT

19 Revolution Avenue
394000 Voronezh, Russia
ph. (8-4732) 55-35-00,
fax (8-4732) 55-42-67 - 55-38-56
e-mail: post@vgta.vrn.ru
Fiscal Code: 3666026776

ГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ
ВОРОНЕЖСКАЯ ГОСУДАРСТВЕННАЯ ТЕХНОЛОГИЧЕСКАЯ АКАДЕМИЯ
VSAT - VORONEZH STATE ACADEMY OF TECHNOLOGY

Doct. Svetlana B. Zueva - Department of Ecology

sveta@zz.vrn.ru

Introduction

The RUSSIAN AGRO-INDUSTRIAL CO. is located in the Lipezk Region (some 160 km North of Voronezh). It is a large farm outfit in which a number of animal farms and a PIG butchering /meat treatment plant are located (please see schematic layout in Exhibit 1).

The RUSSIAN AGRO-INDUSTRIAL CO. has requested VSAT, which intends to involve ECORECYCLING and SCANGEA, to produce a Pre-Feasibility Study for a facility to process organic waste from crops, animal farms and meat plant in order to obtain energy and fertilizers. This preliminary study ought to outline:

- Technological solutions;
- Approximate estimate of cost.

RUSSIAN needs this document to substantiate its application for a grant from the Federal Government to modernize its plants. It is agreed that, upon obtaining the grant (envisaged for the second quarter of 2011) RUSSIAN will pay the Pre-Feasibility Study to VSTA and the Italian Partners (Ecorecycling and Scangea), and also, and foremost, shall grant the EPC contract for the new facility (EPC = Engineering + Procurement + Construction).

On October 12th and 15th meetings were held at the RUSSIAN AGRO-INDUSTRIAL CO. Offices in Olhovatka, Lipezk Region, attended by:

- Mr Igor Shelepov, Chief Director of Agro-Industrial Company "RUSSIAN";
- Mrs Natalja Rassadina, Director Meat Plant "Karamushevo"
- Doct. Svetlana B. Zueva, representing VSAT

During the meeting "Russian" stated their intent to modernize their waste water treatment plant as well as to upgrade their organic waste treatment facility in order to produce products which could be sold, thus generating additional income for the company.

Information about the chemical composition of the waste water and manure was given during the meeting, and constitutes the rest of this document.

ФЕДЕРАЛЬНОЕ АГЕНСТВО ПО ОБРАЗОВАНИЮ

ГОУВПО ВГТА

394000, г. Воронеж,
 пр. Революции, 19,
 Тел. (8-4732) 55-35-00
 Факс (8-4732) 55-42-67 - 55-38-56
 Эл. почта: post@vgta.vrn.ru
 ИНН 3666026776



VSAT

19 Revolution Avenue
 394000 Voronezh, Russia
 ph. (8-4732) 55-35-00,
 fax (8-4732) 55-42-67 - 55-38-56
 e-mail: post@vgta.vrn.ru
 Fiscal Code: 3666026776

ГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ
ВОРОНЕЖСКАЯ ГОСУДАРСТВЕННАЯ ТЕХНОЛОГИЧЕСКАЯ АКАДЕМИЯ
VSAT - VORONEZH STATE ACADEMY OF TECHNOLOGY
 Doct. Svetlana B. Zueva - Department of Ecology
sveta@zz.vrn.ru

1. Waste from ANIMAL FARMS (Pigs, Cattle)

Manure	Cow (milk) farm	Pig farm
Total quantity	17.000 ton/year	83.150 ton/year
pH	7,35	6,12
The maintenance on solid/ natural damp:		
Dry matter	-/82,83 %	-/74,96 %
Total Nitrogen	1,48 %	2,55/0,67 %
Total P ₂ O ₅	1,14 %	2,81/0,70 %
Total K ₂ O	2,86 %	1,11/0,27 %
Ash	12,74 %	16,63/4,15 %
Organic substance:		
-converting in carbon	43,6 %	41,7 %
-converting in organic substance	87,26 %	83,37 %
Carbon/nitrogen	29,5	16,35
Heavy metals (mg/kg):		
Zn	13,2	58,0
Mn	16,8	23,4
Cu	3,3	9,6
Co	5,7	9,9
Cd	0,03	0,07
Pb	1,2	1,5
Cr	1,2	4,1
Fe	90	480

ГОУВПО ВГТА

394000, г. Воронеж,
 пр. Революции, 19,
 Тел. (8-4732) 55-35-00
 Факс (8-4732) 55-42-67 - 55-38-56
 Эл. почта: post@vgta.vrn.ru
 ИНН 3666026776



VSAT

19 Revolution Avenue
 394000 Voronezh, Russia
 ph. (8-4732) 55-35-00,
 fax (8-4732) 55-42-67 - 55-38-56
 e-mail: post@vgta.vrn.ru
 Fiscal Code: 3666026776

**ГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ
 ВОРОНЕЖСКАЯ ГОСУДАРСТВЕННАЯ ТЕХНОЛОГИЧЕСКАЯ АКАДЕМИЯ
 VSAT - VORONEZH STATE ACADEMY OF TECHNOLOGY
 Doct. Svetlana B. Zueva - Department of Ecology
sveta@zz.vrn.ru**

2. LIPETZK PIG BUTCHERING / MEAT-PROCESSING PLANT

Capacity: 240 pigs/day
Electricity Consumption: 92.000 kWh/month
Gas Bill: 50.000 Rub/month

2.1. Waste

Livestock Slaughter House

Total waste volume \approx **3600 kg/day**
 Manure – 1200-1500 kg/day
 Guts, rejected liver – 360 kg/day
 Bristle – 0,24 kg/day,
 Blood – 1200 kg/day

Sausage House

Bones – **2800 kg/day**

2.2 Waste water treatment

Water Consumption: 4384,8 m³/month
 Dump in Sewage: 3507,8 m³/month

After waste water treatment

Sludge: about 1000 kg/day

Payment for dump of sewage: 6000 Rub/month

Waste water Parameters	Limits	Real Concentration before treatment, mg/l
pH	6,5 – 8,5	7,27
Ammonium	20,0	137,5
Total Fe	0,57	4,77
BOD	36,65	1680
Phosphates	2,98	6,3
Sulfate	30,75	34,9
Fats	2,68	144
Sediment	31,73	750
Chlorides		155
Superficially active substances (SAS)		0,24

ГОУВПО ВГТА

394000, г. Воронеж,
 пр. Революции, 19,
 Тел. (8-4732) 55-35-00
 Факс (8-4732) 55-42-67 - 55-38-56
 Эл. почта: post@vgta.vrn.ru
 ИНН 3666026776

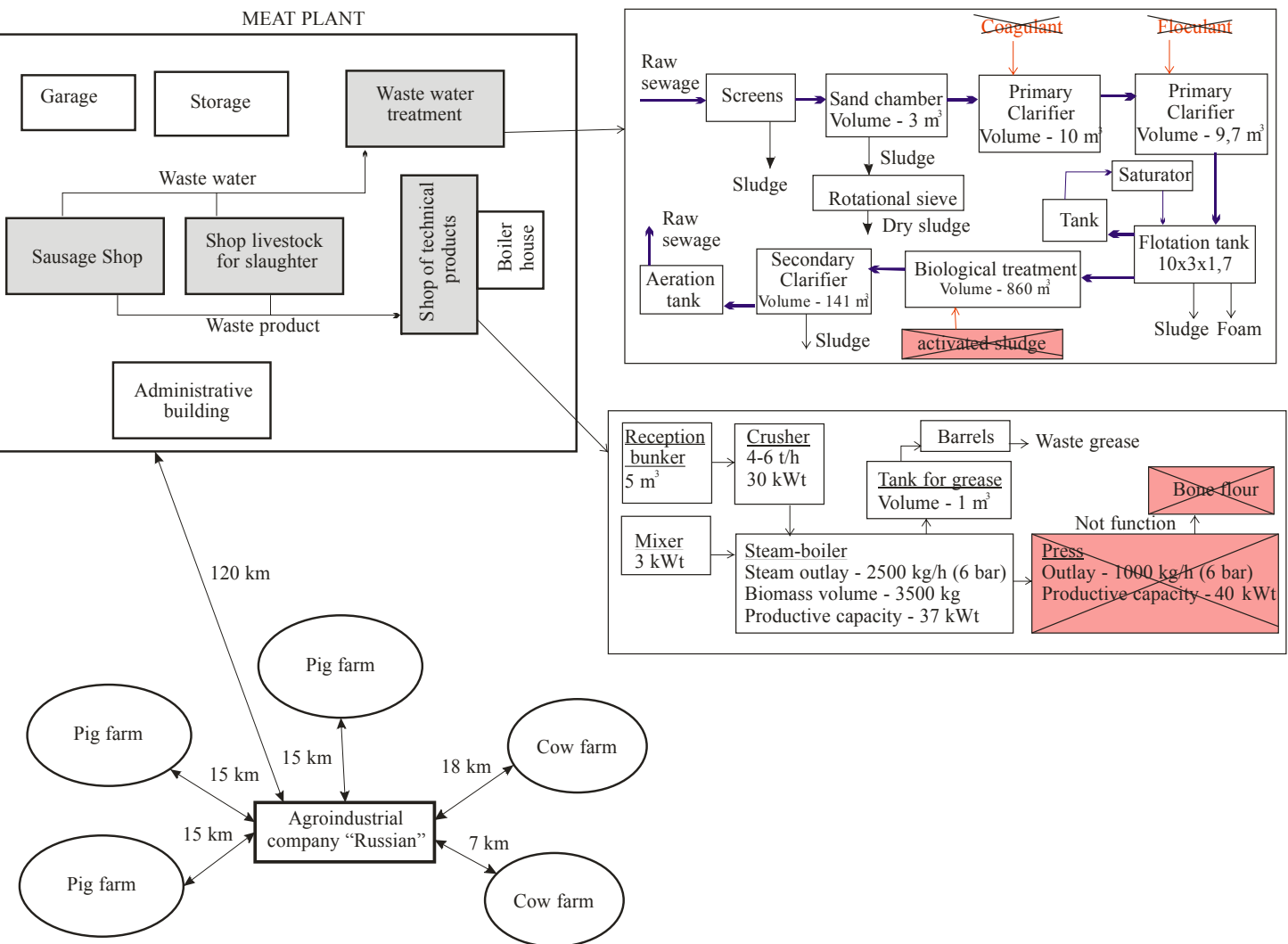


VSAT

19 Revolution Avenue
 394000 Voronezh, Russia
 ph. (8-4732) 55-35-00,
 fax (8-4732) 55-42-67 - 55-38-56
 e-mail: post@vgta.vrn.ru
 Fiscal Code: 3666026776

**ГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ
 ВОРОНЕЖСКАЯ ГОСУДАРСТВЕННАЯ ТЕХНОЛОГИЧЕСКАЯ АКАДЕМИЯ
 VSAT - VORONEZH STATE ACADEMY OF TECHNOLOGY
 Doct. Svetlana B. Zueva - Department of Ecology
sveta@zz.vrn.ru**

PLANT LAYOUT



**Exhibit 1
 Layout**

Notes:

(1) Coagulants and activated sludge are not being used for the time being.