

THE CITY OF Appleton

DEPARTMENT OF PUBLIC WORKS

WASTEWATER DIVISION

59 Weimar Court
Appleton, WI 54915-2758
414/735-5945

March 27, 1985

Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

RE: Amend Present License

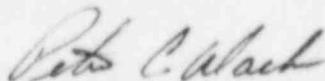
Dear Commission:

We are in the process of purchasing a conveyor belt scale which contains a nuclear source of 200 millicuries of Cesium 137. The scale manufacturer is Ramsey Engineering Company of St. Paul, Minnesota.

We presently have material license number 48-18213-01 and would like the license amended to include this new material.

I have attached some information which explains the use of the material. Should you have any questions regarding this, please feel free to contact me.

Sincerely,



PETER C. WACHS
Superintendent

maf
Attachment

U.S. N.R.C.
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Date	4/10/85
Log	4/10/85
By	C. P. Wachs
Orig. To	Appleton
Action Control	Appleton

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48-18213-01 PDR

CONTROL NO. 78638

RAMSEY ENGINEERING CO.

1853 W. COUNTY RD. C
ST. PAUL, MINNESOTA 55113
PHONE (612) 633 5150
CABLE ADDRESS: RAMCO
TELEX: 29 7001

AFFILIATES IN

Toronto · Mexico City · Sydney · Madrid · Milan
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TO: City of Appleton
Department of Public Works
59 Weimar Court
Appleton, Wisconsin 54915
Attention: Mr. Peter C. Wachs

Date February 11, 1985
Your Inq. Verbal
Our Ref. #02295

Item	Quantity	Description	Price
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We are pleased to submit the following quotation for a Ramsey NAF Series Conveyor Belt Scale.

A. APPLICATION SPECIFICATIONS:

Please see the enclosed pricing and supplementary data sheet for all scale application data.

B. EQUIPMENT DESCRIPTION:

Ramsey will supply the "A" Frame Model NAF Belt Scale System consisting of the following:

1. Ramsey "A" Frame Belt Scale Source and Detector Assembly.

(a) Gauge Head:

The gauge head construction is bolted steel, "A" Frame. The upper portion contains the source collimator and shutter assembly. The detector heater assembly and heater control assembly are housed in the lower section.

This unit is certified to meet Class I, Groups C & D, Class II, Groups E, F & G, and Class III requirements for hazardous environments. The detector housing is rated Class IV.

(b) Radiation Sources:

Radiation sources are Cesium 137, doubly encapsulated in a heliarc welded, stainless steel capsule.

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PHONE (612) 633-5150
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(c) Radiation Shielding:

Radiation shielding is of lead and special metal alloys. Radiation levels are below 5 mR/hr, one foot from any accessible surface, except within the measurement beam. Design and construction meets the safety requirements of the Nuclear Regulatory Commission (NRC) and Agreement State licensing agencies.

(d) Shutter:

The shutter is two positioned, lever actuated, steel encased lead block, and may be fastened in open or calibrate position; may be locked in closed position.

(e) Detector:

The detector is an ion chamber, heliarc welded and of stainless steel construction with temperature controlled to eliminate humidity effects. The operating temperatures are from -40 Degrees F. to +155 Degrees F.

(f) Interconnecting Wiring:

The interconnecting wiring is a 4-conductor shielded amplifier/detector cable for signal and DC voltages; 2-conductor shielded cable (#18 wire) for detector heater (supplied by user). May be connected to local AC outlet or to amplifier. One #14 ground wire to be supplied by user, if required by local wiring codes. Not essential to equipment operation. The threaded conduit connector is 3/4".

(g) Ramsey Model 10-201-1 MICRO-TECH Electronic Integrator:

- (1) Microprocessor-type integrator with count rates up to 190,000 counts per hour.
- (2) Simple keyboard entry of field calibration data.
- (3) Single button ZERO and SPAN (see calibration below).

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(h) Signal Linearization for Belt Loading:

All nuclear weigh scales are non-linear, since the scale output varies in a negative exponential fashion, with the product loading.

The Ramsey linearizer is specifically designed to linearize the signal from a gamma ray absorption type weigh system. This linearizer generates the mathematical inverse of the exponential relation between radiation intensity and product loading, thus providing fully automatic signal linearization.

(1) Benefits of the Ramsey linearizer:

- (a) Ease of set-up, single control, the correction factor automatically adjusts the linearizer.
- (b) When used in conjunction with the Automatic Source Decay Compensator, this linearizer is unique. The total system has no drift; (i.e., is completely stable).

3. Tachometer:

Ramsey Model 60-12 Speed Sensor. The linearizer/multiplier accepts the pulse input from the tachometer, which represents belt travel. The linearizer loading signal is multiplied by the pulse input to give an output equal to the total system throughput.

4. Calibration Plate Assembly:

After the system has been calibrated on process material, the calibration plates provide a quick check on system performance. With the belt running empty, the calibration plate assembly is placed beneath the source to attenuate radiation, thus simulating belt loading. Plate thickness is adjusted to provide an upscale meter deflection which is recorded and used for future system checkout and/or recalibration.

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