



STATE OF ALABAMA DEPARTMENT OF
PUBLIC HEALTH

Donald E. Williamson, MD
State Health Officer

March 22, 2002

Mr. Roger L. Suppes
Bureau of Radiation Protection
Ohio Department of Health
P. O. Box 118
Columbus, OH 43266-0118

Re: Ohmart SHLG and high temperatures

Dear Mr. Suppes:

Enclosed are reports of damage to Ohmart SHLG-2 devices due to heat. It appears that you may wish to review the SS&D sheet for the environmental temperatures allowable where the SHLG-2 device is be installed.

After many years of satisfactory service, the licensee increased the amount of coke and charge of the copula to increase production. This resulted in heat damage to the Model SHLG-2 device on 2/13/02. This was replaced with another Model SHLG-2.

To protect it from heat, the licensee built a plate metal box around the new device and placed insulation inside the "box" around the device. The previous device had been in open air on the outside wall of the copula. It is the opinion of the writer that this insulation and metal "box" served to increase the temperature of the device and contributed to the heat damage that it suffered on 2/27/02.

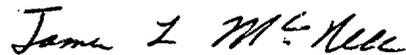
The licensee then had Ohmart replace this device with an Ohmart SH-F2 device, which due to it's shielding being made of Tungsten instead of Lead has a higher temperature rating. The State of Alabama advised the licensee to have the device installed such that it is open to the air for convection cooling.

You may wish to review the SS&D sheet for the Ohmart SHLG-2, originally issued by Kentucky, but now under your jurisdiction, to see if the issues of acceptable environmental temperatures and heat dispersion at the installation location are adequately addressed.

Mr. Roger L. Suppes
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Should you have any questions concerning this event, please contact this office at 334-206-5391 and we will be glad to discuss them with you.

Sincerely,

A handwritten signature in cursive script that reads "James L. McNees".

James L. McNees, Director
Radioactive Materials Compliance Branch
Office of Radiation Control

JLM/mwf

cc: Nuclear Regulatory Commission



McWANE CAST IRON PIPE CO.
1201 VANDERBILT ROAD • BIRMINGHAM, ALABAMA 35234

March 13, 2002

Mr. Kirksey Whatley
Alabama Department of Public Health
Office of Radiation Control
RSA Tower
P.O. Box 303017
Montgomery, AL 36130-3017

Re: Radioactive Material License No. 507 Amendment #13

Dear Mr. Whatley:

The following events took place concerning our Burden Height Indicator (Ohmart Model A-2104 Sealed Source).

Date: February 13, 2002
Time: 1410 hours
Location: Melting Department - Cupola
Equipment: Burden Height Indicator - Ohmart Model A-2104 Sealed Source
Serial Number: 75256
Material: Cesium-137 (4500 millicurie)
Holder: Ohmart SHLG-2 Source Holder
Prepared By: Scott Wesner, Safety Director

On Wednesday, February 13, 2002, at 1410 hours, it was determined that the burden height indicator holder was damaged. The cupola started calling for a charge and never got the charge. The charge never went up. Normally the cupola takes a charge every two minutes, but the charge didn't go up after five minutes. The Melting Foreman went up to the charging deck to make sure the burden height indicator on/off mechanism was correctly positioned. He noticed lead on the ground next to the holder and immediately left the area. The Radiation Safety Officer was immediately notified and he inspected the area.

It appeared that the holder overheated causing a hole less than a ¼ inch on the top of the burden height indicator housing. The hole was adjacent (south of) to the handle used to open and close the shutter. It appears that some of the lead shield had seeped out of the opening and it laid to the east of the housing on the ground. The shutter was not able to be closed. Personnel were directed

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to keep out of the area and caution tape was put in place to warn employees. The use of the burden height indicator was immediately suspended and operations switched into manual for level indicating. Don Hammer of Citizens Baptist Medical Center was contacted to survey the area.

At approximately 1515 hours, Don Hammer surveyed the area with Solar Electronics International Monitor 4 (S/N 12057) and took a wipe sample of the holder. His real time readings were as follows:

Contact with top of housing	Maximum 5 mR/hr
Approximately 1 foot from the housing	Maximum 0.3-0.4 mR/hr
South side entrance to cupola	Maximum 0.3-0.4 mR/hr

At approximately 1545 hours the manufacture, Ohmart Corporation, was contacted and informed about the damaged source holder. They made arrangements to have an authorized repairmen come to our facility.

At approximately 1620 hours, Don Hammer called with the wipe sample result. The wipe sample showed the source is not considered leaking. The wipe sample was counted with a Ludlum Model 1000 rate meter and two inch scintillation detector. The wipe sample results are as follows:

Result	less than 2.7×10^{-4} microcuries
Wipe	354 cpm
Background	341 cpm
Net	13 cpm

The holder had lost some shielding; however, there was no significant radiation hazard around the holder.

At approximately 1645 hours the Alabama Department of Public Health, Air and Radiation Division was called. It was after hours and the message gave two options. Option 1 was for a radiation emergency and option 2 was for a non emergency. Since the source was considered not leaking it was decided that this was not an immediate emergency and option 2 was taken and the phone call would be made the next day during normal business hours.

On Thursday, February 14, 2002, the incident was reported to the Alabama Department of Public Health, Air and Radiation Division.

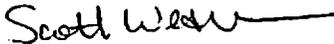
On Friday, February 15, 2002, Dan Nartker of Ohmart Corporation arrived around 1700 hours. He inspected the source holder, performed a leak test, and performed a gross contamination check. No significant readings were observed. The on/off mechanism could not be shut so, Mr. Nartker made a calculation for the amount of shielding necessary to place over the shutter opening. The source holder was slipped back and four inches of steel was placed over the shutter opening and secured. The surface reading was 25 mR. The source holder was placed in an approved 55 gallon drum and floor dry was used as packing.

At approximately 2200 hours the new Ohmart SHLG-2 Source Holder with (4500 millicurie) Cesium-137 source, serial number 5812GK arrived onsite. The new unit was installed and a leak test was performed.

On Friday, March 1, 2002, Ohmart SHLG-2 Source Holder with (4500 millicurie) Cesium-137 source, serial number source number 75256 was shipped to:

Ohmart
4241 Allendorf Drive
Cincinnati, Ohio 45209

Sincerely,



Scott Wesner
Safety Director

**McWANE CAST IRON PIPE CO.**

1201 VANDERBILT ROAD • BIRMINGHAM, ALABAMA 35234

March 18, 2002

Mr. Kirksey Whatley
Alabama Department of Public Health
Office of Radiation Control
RSA Tower
P.O. Box 303017
Montgomery, AL 36130-3017

Re: Radioactive Material License No. 507 Amendment #13

Dear Mr. Whatley:

The following events took place concerning our Burden Height Indicator (Ohmart Model A-2104 Sealed Source).

Date: February 27, 2002
Time: 0950 hours
Location: Melting Department - Cupola
Equipment: Burden Height Indicator - Ohmart Model A-2104 Sealed Source
Material: Cesium-137 (4500 millicurie)
Serial #: 5812GK
Holder: Ohmart SHLG-2 Source Holder
Prepared By: Scott Wesner, Safety Director

On Wednesday, February 27, 2002, at 1000 hours, it was determined that the burden height indicator holder was damaged. Prior to this the cupola was running extremely well. The cupola started calling for a charge and never got the charge. The charge never went up. Normally the cupola takes a charge every two minutes, but the charge didn't go up after five minutes. The Melting Foreman went up to the charging deck and manually checked the cupola level from the south door. The cupola needed a charge. So the foreman went around to the north side to check the burden height indicator on/off mechanism and it was in the open position. The Radiation Safety Officer was immediately notified and he inspected the area.

It appeared that the holder overheated because there was lead on the ground to the northeast of the holder. Steel sheeting used as a heat deflector six to eight inches to the west and north of the holder appeared to have acted as an insulator trapping heat in the area of the holder. There was no evidence of where the lead came out of the holder. The shutter was not able to be closed. Personnel were directed to keep out of the area and caution tape was put in place to warn

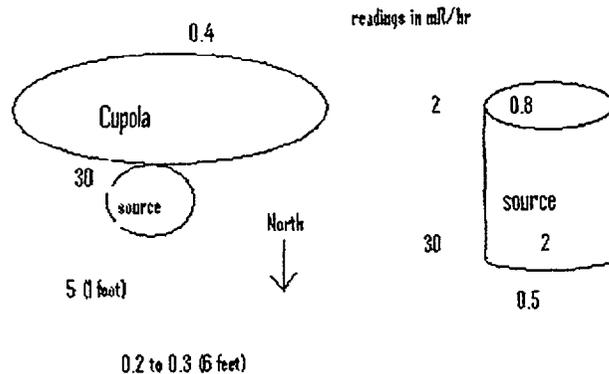
Manufacturers of Gray and Ductile Cast Iron Pipe and Fittings Since 1921.

employees. The use of the burden height indicator was immediately suspended and operations switched into manual for level indicating. Don Hammer of Citizens Baptist Medical Center was contacted to survey the area.

At approximately 1200 hours the manufacture, Ohmart Corporation, was contacted and informed about the damaged source holder. They made arrangements to have an authorized repairmen come to our facility and Ohmart immediately began looking into alternative holders that would be applicable to our operation.

At approximately 1230 hours, Don Hammer surveyed the area with Solar Electronics International Monitor 4 (S/N 12057) and took a wipe sample of the housing. His real time readings were as follows:

East side at the bottom of the source	Maximum 30 mR/hr
Approximately 1 foot from the housing	Maximum 5 mR/hr
South side entrance to cupola	Maximum 0.3-0.4 mR/hr



At approximately 1445 hours, Don Hammer called with the wipe sample result. The wipe sample showed the source is not considered leaking. The wipe sample was counted with a Ludlum Model 1000 rate meter and two inch scintillation detector. The wipe sample results are as follows:

Result	less than 2.6×10^{-4} microcuries
Wipe	366 cpm
Background	398 cpm
Net	00 cpm

At approximately 1555 hours, James McNess of the Alabama Department of Public Health, Air and Radiation Division was notified of the incident.

On Thursday, February 28, 2002, at 1335 hours, Mr. McNess made a site visit.

On Friday, March 1, 2002, at 1500 hours, Cliff Autry of Ohmart arrived on-site. He inspected the source holder, performed a leak test, and performed a gross contamination check. No significant readings were observed. The on/off mechanism could not be shut so, Mr. Autry made a calculation for the amount of shielding necessary to place over the shutter opening. The source holder was slipped back and four and a half inches of steel was placed over the shutter opening and secured. The surface reading was 26 mR. Mr. Autry pointed out that a hole in the bottom of the holder is where the lead seeped out. The source holder was placed in the box that the new one came in and the labels were replaced.

At approximately 2000 hours the new Ohmart SH-F2 Source Holder with (2400 millicurie) Cesium-137 source, serial number MB-4565 arrived onsite. The new unit was installed and a leak test was performed. The new gauge holder has a higher temperature rating than the old one.

At approximately 2130 hours On Friday, March 1, 2002, Ohmart SHLG-2 Source Holder with (4500 millicurie) Cesium-137 source, serial number source number 5812GK was shipped to:

Ohmart
4241 Allendorf Drive
Cincinnati, Ohio 45209

Sincerely,



Scott Wesner
Safety Director



STATE OF ALABAMA DEPARTMENT OF
PUBLIC HEALTH

Donald E. Williamson, MD

State Health Officer

March 5, 2002

MEMORANDUM

TO: Incident File 02-10

FROM: James L. McNees, CHP *JLM:McN*
Alabama Office of Radiation Control

SUBJECT: Alabama Incident #02-10 - Damaged fixed gauge

On the afternoon of February 28, 2002, the writer went to McWane Cast Iron Pipe in Birmingham, Alabama, Alabama License No. 507 that at approximately 1:00 p.m. and inspected the Ohmart Vega Model SHLG device containing 4.5 Ci of Cs-137 that had been damaged the previous day. A drawing of the device is shown in attachment one. Following the replacement of this gauge two weeks ago, McWane had built a welded steel box approximately 2 feet on each side to cover it from the potential of excessive heat and had enclosed around the gauge with insulation material before welding the protective box closed. It is the opinion of the writer that this action trapped heat inside and caused the temperature of the gauge to exceed the melting point of lead. When the writer arrived, this protective box and the insulation had already been removed.

The paint on the device had been darkened and some molten lead had been pushed out of the bottom seam, which apparently been damaged by internal pressure due to excessive heat. The licensee had discovered the problem when the detector opposite the gauge failed to register a full beam when the copula had been emptied. Apparently the lead shielding had melted and sagged into the normal path of the beam. The shutter was in the open (lowered) position and could not be raised to closed (raised) position.

The writer reviewed McWane's consultant's, Don Hamner's, (Alabama License No. 695) survey report for the damaged device and wipe test results. The writer then surveyed the device with a Ludlum 14C, serial #59872, obtaining readings slightly less than on Mr. Hamner's survey report. No wipe samples were collected by the writer.

After consulting with Mr. Whatley, Office Director, the writer approved reciprocity for licensed Ohmart Vega technicians to come to McWane the next afternoon and remove the damaged

device and replace it with a n Ohmart Vega Model SH-F2 containing 2.4 Ci of Cs-137. The SH-F2 device is rated for 1472 degrees F, having tungsten shielding instead of lead. Verbal approval was given to McWane for the faxed amendment request to add the SH-F2 to their license. McWane agreed that the device would be left open to the air on the side of the copula to help dissipate the heat. Ohmart Vega agreed to be responsible for packaging the damaged device to meet 49 CFR specifications prior to shipping it from Birmingham for disposal.

Contact: James L McNees, CHP
Alabama Office of Radiation Control
(334) 206-5391

