



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic & Atmospheric Administration
Office of Oceanic and Atmospheric Research
Earth System Research Laboratory
325 Broadway – David Skaggs Research Center
Boulder, Colorado 80305

May 06, 2011

Memo to: John P. Schneider
Deputy Director, ESRL
Radiation Safety Officer, NRC License: 05-11997-01

From: Dr. James Butler
Director, GMD, ESRL

Subject: Request for release from the stop work order of shipping of radioactive materials

The Global Monitoring Division would like to request a release from the stop work order of shipping of radio active materials covered by NRC license 05-11997-01 received on 17 March 2011.

Shipping Standard Operating Procedures (SOP) have been written for all six baseline observatory sites (Barrow, AK; Trinidad Head, CA; Mauna Loa, HI; American Samoa; Summit, Greenland; and South Pole) for the shipment of Electron Capture Detectors (ECD). Each site's specific SOP is attached.

Each station has received the SOP specific to their site and agrees to follow the protocol. For both Summit and South Pole, shipping is done by the cargo departments run by NSF contractors CH2MHill and Raytheon Polar Services Company respectively. Their emailed correspondence agreeing to follow the protocol is attached. The heads of each cargo department have read our SOP and agree to follow them and each of these departments are trained to ship hazardous cargo.

For the other four sites the following individuals have completed training (certificates attached) in accordance with 49 CFR 172.704 and IATA regulations to meet the requirements set by the NRC:

Barrow, AK – Matthew Martinsen
Trinidad Head, CA – Michael Ives
Mauna Loa, HI – Aidan Colton
American Samoa – Gregg Grundon

As personnel change at these four observatory locations the replacement will have completed these same training requirements as a part of their new hire training.

In Boulder, CO all outbound shipments of an ECD to a Baseline Observatory site will be coordinated with Mr. George Angel in the DOC shipping department. A Boulder specific shipping SOP has been created (attached) and Mr. Angel has completed training (certificates attached) in accordance with 49 CFR 172.704 and IATA regulations.

Attachments: Shipping Standard Operating Procedures
Emailed correspondence with CH2MHill
Emailed correspondence with Raytheon Polar Services Company
Certificates of Completion from DOT (49 CFR) Shipper Course
Certificates of Completion from IATA Dangerous Goods Training

cc: Dr. A.R. Ravishankara, ESRL/CSD
Dr. Alexander E. MacDonald, ESRL



Task: *Shipping of an ECD from a gas chromatograph (GC) at Barrow, Alaska*

Primary contact: Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,
Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,
Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Only as directed by GC point of contact in Boulder.

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

Introduction: Safety is a top priority at NOAA. The NOAA Safety and Environmental Compliance Office (SECO) is the lead organization for safety at NOAA. We want all employees and contractors to "promote a safe and healthy, environmentally responsible, energy efficient work environment". NOAA is involved in world-class measurements and research on ozone depleting, climate or greenhouse, and air quality trace. The electron capture detector (ECD) is one of the most sensitive detectors used to measure atmospheric trace gases containing oxygen, sulfur, fluorine, chlorine, bromine, or iodine atoms. When the ECD is coupled to a gas chromatograph (GC) to separate trace gases from air, this detection method (GC-ECD) is unique for detecting low atmospheric levels of trace gases in the parts-per-billion (ppb, 1 part in 10^9) and parts-per-trillion (ppt, 1 part in 10^{12}) ranges. Occasionally, an ECD will need to be shipped from a field site to Boulder for repair. This SOP addresses these rare instances.

Procedure:

- NOAA instrument technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- ECD shipments will be sent from Barrow, Alaska to Boulder, Colorado via the current NOAA approved shipping company (FedEx, UPS, DHL, etc.).
- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At Barrow, Matthew Martinsen (907-852-6500 or matthew.martinsen@noaa.gov) is trained as a haz-mat certified shipper.
- The haz-mat certified shipper (at Barrow) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA.

- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), and Boulder haz-mat specialist (George Angel).
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*

Certificate of Completion

Online DOT (49CFR) Shipper Course

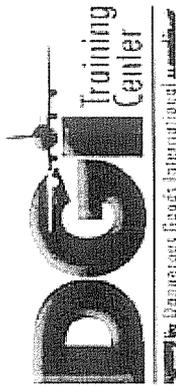
This is to certify that

Matthew J. Martinsen

has been successfully trained and tested in General Awareness, Safety, Security Awareness and Function Specific in the transportation of Hazardous Materials in accordance with the requirements of the

U.S. Department of Transportation, 49CFR, Part 172, Subpart H.

This certificate is valid for three years from the seminar completion date.



To verify training records and materials contact:
DGI Training Center
1069 El Camino Real, Suite B, Redwood City, CA 94063
Telephone: 800-338-2391
www.dgitraining.com

Employer Signature:

Dated:

Bob Neal
15-APR-11

Seminar Completion Date: April 15, 2011

Test Score:

88 %

Type of Training:

Online Training

Program Director:

Candy L. Cook

Certificate of Completion

ONLINE IATA DANGEROUS GOODS TRAINING

This is to certify that

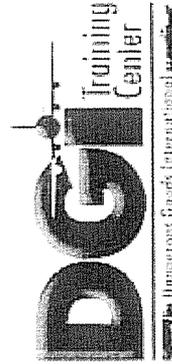
Matthew J. Martinsen

has successfully completed training in IATA/ICAO Acceptance/Function Specific Training which includes General Awareness, in accordance with training requirements of 49 CFR Part 172, Subpart H.

This training does not include DOT Security Awareness or Safety training.

Additional training may be required if you ship or transport Explosive or Radioactive materials.

IATA requires recurrent training no later than 24 months from the date of completion.



To verify training records and materials contact:
DGI Training Center
1060 El Camino Real, Suite B, Redwood City CA 94063
Telephone: 800-338-2291
www.dgitraining.com

Employer Signature:
Dated:

Burl Vahr
3-MAY-11

Seminar Completion Date: May 03, 2011

Test Score: 90 %

Type of Training: Online - IATA

Program Director: Candy L. Cook

Task: Shipping of an ECD from a gas chromatograph (GC) at Trinidad Head, California

Primary contact: Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,
Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,
Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Only as directed by GC point of contact in Boulder.

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

Introduction: Safety is a top priority at NOAA. The NOAA Safety and Environmental Compliance Office (SECO) is the lead organization for safety at NOAA. We want all employees and contractors to "promote a safe and healthy, environmentally responsible, energy efficient work environment". NOAA is involved in world-class measurements and research on ozone depleting, climate or greenhouse, and air quality trace. The electron capture detector (ECD) is one of the most sensitive detectors used to measure atmospheric trace gases containing oxygen, sulfur, fluorine, chlorine, bromine, or iodine atoms. When the ECD is coupled to a gas chromatograph (GC) to separate trace gases from air, this detection method (GC-ECD) is unique for detecting low atmospheric levels of trace gases in the parts-per-billion (ppb, 1 part in 10^9) and parts-per-trillion (ppt, 1 part in 10^{12}) ranges. Occasionally, an ECD will need to be shipped from a field site to Boulder for repair. This SOP addresses these rare instances.

Procedure:

- NOAA instrument technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- ECD shipments will be sent from Trinidad Head, California to Boulder, Colorado via the current NOAA approved shipping company (FedEx, UPS, DHL, etc.).
- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At Trinidad Head, Michael Ives (707-407-5099 or Michael.Ives@noaa.gov) is trained as a haz-mat certified shipper.

- The haz-mat certified shipper (at Trinidad Head) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA.
- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), and Boulder haz-mat specialist (George Angel).
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*

Certificate of Completion

Online DOT (49CFR) Shipper Course

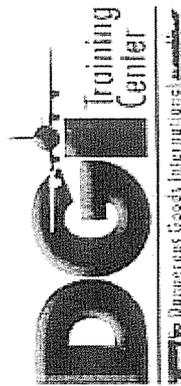
This is to certify that

Michael Ives

has been successfully trained and tested in General Awareness, Safety, Security Awareness and Function Specific in the transportation of Hazardous Materials in accordance with the requirements of the

U.S. Department of Transportation, 49CFR, Part 172, Subpart H.

This certificate is valid for three years from the seminar completion date.



To verify training records and materials contact:
DGI Training Center
1660 El Camino Real, Suite# B, Redwood City CA 94063
Telephone: 800-338-2291
www.dgitraining.com

Employer Signature:

Dated:

Ben A. Vile
23-APR-11

Seminar Completion Date: April 23, 2011

Test Score: 93 %

Type of Training: Online Training

Program Director: Candy L. Coak

Certificate of Completion

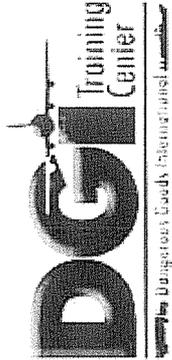
ONLINE IATA DANGEROUS GOODS TRAINING

This is to certify that

Michael Ives

has successfully completed training in IATA/ICAO Acceptance/Function Specific Training which includes General Awareness, Safety, DOT Security Awareness in accordance with training requirements of 49 CFR Part 172, Subpart H. Additional training may be required if you ship or transport Explosive or Radioactive materials.

IATA requires recurrent training no later than 24 months from the date of completion.



To verify training records and materials contact:
DCI Training Center
10660 El Camino Real, Suite B, Redwood City, CA 94063
Telephone: 800-338-2291
www.dci-training.com

Employer Signature:

Dated:

Beth Lee
6-20-11

Seminar Completion Date: May 06, 2011

Test Score: 94 %

Type of Training: Online - IATA

Program Director: Candy L. Cook

Task: Shipping of an ECD from a gas chromatograph (GC) at Mauna Loa, Hawaii

Primary contact: Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,
Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,
Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Only as directed by GC point of contact in Boulder.

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

Introduction: Safety is a top priority at NOAA. The NOAA Safety and Environmental Compliance Office (SECO) is the lead organization for safety at NOAA. We want all employees and contractors to "promote a safe and healthy, environmentally responsible, energy efficient work environment". NOAA is involved in world-class measurements and research on ozone depleting, climate or greenhouse, and air quality trace. The electron capture detector (ECD) is one of the most sensitive detectors used to measure atmospheric trace gases containing oxygen, sulfur, fluorine, chlorine, bromine, or iodine atoms. When the ECD is coupled to a gas chromatograph (GC) to separate trace gases from air, this detection method (GC-ECD) is unique for detecting low atmospheric levels of trace gases in the parts-per-billion (ppb, 1 part in 10^9) and parts-per-trillion (ppt, 1 part in 10^{12}) ranges. Occasionally, an ECD will need to be shipped from a field site to Boulder for repair. This SOP addresses these rare instances.

Procedure:

- NOAA instrument technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- ECD shipments will be sent from Mauna Loa, Hawaii to Boulder, Colorado via the current NOAA approved shipping company (FedEx, UPS, DHL, etc.).
- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At Mauna Loa, Aidan Colton (808-933-6965 ext 233 or aidan.colton@noaa.gov) is trained as a haz-mat certified shipper.
- The haz-mat certified shipper (at Mauna Loa) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA.

- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), and Boulder haz-mat specialist (George Angel).
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*

Certificate of Completion

Online DOT (49CFR) Shipper Course

This is to certify that

Aidan J. Colton

has been successfully trained and tested in General Awareness, Safety, Security Awareness and Function Specific in the transportation of Hazardous Materials in accordance with the requirements of the U.S. Department of Transportation, 49CFR, Part 172, Subpart H.

This certificate is valid for three years from the seminar completion date.



To verify training records and materials contact:
DGI Training Center
1660 El Camino Real, Suite# B, Redwood City CA 94063
Telephone: 810-238-2291
www.dgitraining.com

Employer Signature:

Dated:


14-Jun-10

Seminar Completion Date: June 14, 2010

Test Score: 85 %

Type of Training: Online Training

Program Director: Caudy L. Cook

Certificate of Completion

ONLINE IATA DANGEROUS GOODS TRAINING

This is to certify that

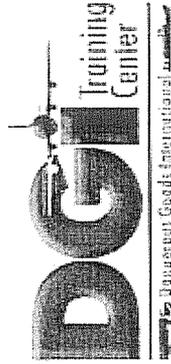
Aidan J. Colton

has been successfully trained and tested in the transportation of Dangerous Goods in accordance with the training requirements of the International Civil Aviation Organization (ICAO).

IATA DG Regulations and the U.S. DOT, Title 49CFR, Subpart H.

Additional Function Specific training may be required if you ship or accept Radioactive Materials.

This certificate is valid for 24 months from the date of completion.



To verify training records and materials contact:
DGI Training Center
1060 El Camino Real, Suite B, Redwood City, CA 94063
Telephone: 800.438.2391
www.dgtraining.com

Employer Signature:
Dated:

Seminar Completion Date: June 09, 2010

Test Score: 90 %

Type of Training: Online - IATA

Program Director: Candy L. Coafe

Task: *Shipping of an ECD from a gas chromatograph (GC) at American Samoa*

Primary contact: Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,
Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,
Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Only as directed by GC point of contact in Boulder.

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

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Procedure:

- NOAA instrument technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- ECD shipments will be sent from American Samoa to Boulder, Colorado via the current NOAA approved shipping company (FedEx, UPS, DHL, etc.).
- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At American Samoa, Gregg Grundon (684-258-2848 or gregg.grundon@noaa.gov) is trained as a haz-mat certified shipper.
- The haz-mat certified shipper (at American Samoa) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA.

- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), and Boulder haz-mat specialist (George Angel).
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*

Certificate of Completion

Online DOT (49CFR) Shipper Course

This is to certify that

Greggery B. Grundon

has been successfully trained and tested in General Awareness, Safety, Security Awareness and Function Specific in the transportation of Hazardous Materials in accordance with the requirements of the U.S. Department of Transportation, 49CFR, Part 172, Subpart H.

This certificate is valid for three years from the seminar completion date.



For more information, contact:
DCI Training Center
1060 El Camino Real, Suite B, Redwood City CA 94063
Telephone: 800-338-2291
www.dctraining.com

Employer Signature:

Dated:


27-APR-11

Seminar Completion Date: April 27, 2011

Test Score: 89 %

Type of Training: Online Training

Program Director: Candy L. Cook

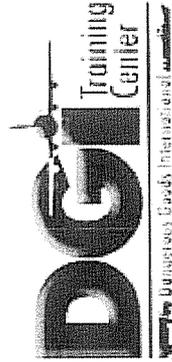
Certificate of Completion

ONLINE IATA DANGEROUS GOODS TRAINING

This is to certify that

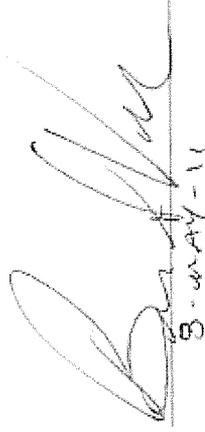
Greggery B. Grundon

has successfully completed training in IATA/ICAO Acceptance/Function Specific Training which includes General Awareness, Safety, DOT Security Awareness in accordance with training requirements of 49 CFR Part 172, Subpart H. Additional training may be required if you ship or transport Explosive or Radioactive materials.
IATA requires recurrent training no later than 24 months from the date of completion.



To verify training records and materials contact:
DCI Training Center
1066 El Camino Real, Suite B, Redwood City, CA 94063
Telephone: 800-338-2291
www.dcittraining.com

Employer Signature:
Dated:


3-MAY-11

Seminar Completion Date: May 08, 2011
Test Score: 85 %
Type of Training: Online - IATA
Program Director: Candy L. Cook

Task: Shipping of an ECD from a gas chromatograph (GC) at South Pole, Antarctica

Primary contact: Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,
Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,
Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Summer season ONLY (via NY Air National Guard C-130s)
(Only as directed by GC point of contact in Boulder.)

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

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Procedure:

- NOAA instrument technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- Shipment of an ECD will ONLY occur during the austral summer months (October to February) and via the U.S. Antarctic Program (USAP) cargo system. An ECD will NEVER be sent from South Pole via personal baggage or hand-carried to New Zealand to then be forward shipped to Boulder.
- Summer ECD shipments will be sent from South Pole Station, Antarctica to USAP cargo facility in Christchurch, New Zealand via military aircraft. This facility is operated under the direction of the U.S. National Science Foundation (NSF) and logistics contractor and Raytheon Polar Services Company (RPSC). From NZ, the shipment will be forwarded on to Boulder by the USAP cargo personnel. The New Zealand USAP cargo manger is Mike Skevington, email:

mike.skevington@usap.gov. The USAP cargo personnel will secure the package after removal from the military flight to NZ and arrange commercial shipping for the package to Boulder (this may include: surface and/or air service).

- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - in Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At South Pole, the cargo manager is Patricia Douglas, email: Patricia.Douglas.Contractor@usap.gov. The haz-mat specialist is part of the NSF/USAP South Pole cargo department. Each summer season the cargo personnel are trained prior to deployment.
- The haz-mat certified shipper (at South Pole) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA.
- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), Boulder haz-mat specialist (George Angel), and the required USAP shipping staff.
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*

Subject: RE: ECD shipping SOP for South Pole

From: "Douglas, Patricia (Contractor)" <Patricia.Douglas.Contractor@usap.gov>

Date: Tue, 03 May 2011 08:50:28 -0600

To: "Vasel, Brian O-264-P" <Brian.Vasel@noaa.gov>

This procedure is fine.

Paddy

-----Original Message-----

From: Brian Vasel [<mailto:Brian.Vasel@noaa.gov>]

Sent: Tuesday, May 03, 2011 8:48 AM

To: Douglas, Patricia (Contractor)

Subject: ECD shipping SOP for South Pole

Paddy

Attached is the shipping document we discussed yesterday to establish a written SOP in the event we (NOAA) ever require sending an ECD from South Pole back to Boulder.

Please review and make any necessary corrections. (FYI, I listed Mike Shevington as the NZ cargo manager, not sure if that is correct.)

Finally, please reply that the attached document (or modified version you return to me) is acceptable to you.

Thank You!!

-Brian

--

Brian A. Vasel

NOAA Earth System Research Laboratory
Global Monitoring Division
Observatory & Global Network Operations
325 Broadway, R/GND1
Boulder, Colorado 80305 USA

Office: 303.497.6655

Mobile: 303.638.4593

Fax: 303.497.6590

Task: *Shipping of an ECD from a gas chromatograph (GC) at Summit, Greenland*

Primary contact: Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,
Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,
Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Summer season ONLY (via NY Air National Guard C-130s)
(Only as directed by GC point of contact in Boulder.)

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

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Procedure:

- Station technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- **Shipment of an ECD will ONLY occur during the summer months and via the NY Air National Guard C-130 flights. An ECD will NEVER be sent via Copenhagen during the winter season (late-August to mid-April) each year.**
- Summer ECD shipments will be sent from Summit, Greenland to Stratton Air National Guard base in Schenectady, NY via military aircraft. From there, it will be forwarded on to Boulder by National Science Foundation (NSF) contractor and Polar Field Services cargo manager, Earl Vaughn, 518-605-0979, earl.vaughn@gmail.com. Earl will secure the package after removal from the military flight to NY and notify a commercial shipping company (FedEx, DHL, etc.) to pick-up the package for continued shipment on to Boulder.

- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At Summit, the site haz-mat specialist is the NSF science technician. Each summer the technician is trained prior to deployment.
- The haz-mat certified shipper (at Summit, Greenland) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01.
- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), Boulder haz-mat specialist (George Angel), and NY ANG shipping director (Earl Vaughn) in Albany, NY.
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*

Subject: RE: SOP to ship haz-mat from Summit
From: Katrine Gorham <katrine@polarfield.com>
Date: Mon, 21 Mar 2011 09:34:19 -0600
To: 'Brian Vasel' <Brian.Vasel@noaa.gov>

Hi Brian,

Looks good. The only revision is Earl's telephone number, which should be 518-605-0979. For summer 2011 and moving forward the CPS sci tech will be haz cargo trained.

When it's done, can you send me a final version of the SOP so I can keep it in my records?

Thanks,
Katrine

Katrine Gorham | Polar Field Services*
Summit Science Project Manager
8110 Shaffer Parkway #150
Littleton CO 80127

Mobile 303-349-2884 | Office 303-984-1450, x216
<http://www.polar.ch2m.com> | <http://www.polarfield.com>

*Polar Field Services is part of the CH2M Hill Polar Services (CPS) team

-----Original Message-----

From: Brian Vasel [<mailto:Brian.Vasel@noaa.gov>]
Sent: Friday, March 18, 2011 11:15 AM
To: Katrine Gorham
Subject: SOP to ship haz-mat from Summit

Katrine-

Can you review the attached SOP for shipping an ECD from Summit, provide changes (as needed), and reply back to me that the proposed plan is acceptable?

Thanks-
Brian

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Brian A. Vasel

NOAA Earth System Research Laboratory
Global Monitoring Division
Observatory & Global Network Operations
325 Broadway, R/GMD1
Boulder, Colorado 80305 USA

Office: 303.497.6655
Mobile: 303.638.4593
Fax: 303.497.5590

Task: Shipping of an ECD from a gas chromatograph (GC) from Boulder, Colorado***Primary contact:*** Geoff Dutton, NOAA-ESRL (Boulder) 303-497-6086,

Geoff.Dutton@noaa.gov

Secondary contact: Brian Vasel, NOAA-ESRL (Boulder) 303-497-6655,

Brian.Vasel@noaa.gov

How often: Seldom, as needed.
Only as directed by GC point of contact in Boulder.

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

Introduction: Safety is a top priority at NOAA. The NOAA Safety and Environmental Compliance Office (SECO) is the lead organization for safety at NOAA. We want all employees and contractors to "promote a safe and healthy, environmentally responsible, energy efficient work environment". NOAA is involved in world-class measurements and research on ozone depletion, climate change, greenhouse gases, and air quality tracers. The electron capture detector (ECD) is one of the most sensitive detectors used to measure atmospheric trace gases containing oxygen, sulfur, fluorine, chlorine, bromine, or iodine atoms. When the ECD is coupled to a gas chromatograph (GC) to separate trace gases from air, this detection method (GC-ECD) is unique for detecting low atmospheric levels of trace gases in the parts-per-billion (ppb, 1 part in 10^9) and parts-per-trillion (ppt, 1 part in 10^{12}) ranges. Occasionally, an ECD will need to be shipped from Boulder back to a field site following a repair. This SOP addresses these rare instances.

Procedure:

- NOAA trained staff oversee repairs by the manufacturer, if needed, and perform calibration of the ECD prior to shipment. Boulder instrument technician communicates with field site personnel that an ECD is ready to be shipped to the site.
- The ECD and its housing (or can) will be shipped from Boulder as one complete sealed unit. The can will not be opened on site.
- ECD shipments will be sent from Boulder, Colorado to any of the NOAA Baseline Observatories (Barrow, Trinidad Head, Mauna Loa, American Samoa, South Pole, or Summit) via the current NOAA approved commercial shipping company (FedEx, UPS, etc.).
- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat shipper is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov

- At Barrow, Matthew Martinsen (matthew.martinsen@noaa.gov) is trained as a haz-mat certified shipper as a part of the initial hire training for the position.
- At Trinidad Head, Michael Ives (Michael.Ives@noaa.gov) is trained as a haz-mat certified shipper as a part of the initial hire training for the position.
- At Mauna Loa, Aidan Colton (aidan.colton@noaa.gov) is trained as a haz-mat certified shipper as a part of the initial hire training for the position.
- At American Samoa, Gregg Grundon (Gregg.Grundon@noaa.gov) is trained as a haz-mat certified shipper as a part of the initial hire training for the position.
- At South Pole and Summit the National Science Foundation (NSF) contractor cargo staff are trained as a haz-mat certified shippers as a part of the initial hire training for the position. Staff change each year and the correct POC can be identified when needed.
- The haz-mat certified shipper in Boulder will receive the open box from GMD staff. The shipper will certify the haz-mat packaging is correct and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA/GMD.
- Once the box is sealed, labeled and awaiting pickup from the shipping company the package will be secured in a locked cage to maintain physical security of the ECD.
- Shipment via appropriate method and in coordination/notification with GC project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), and Boulder haz-mat shipper (George Angel).
- *In no circumstance will an ECD ever be shipped from Boulder without following this established written SOP.*

CERTIFICATE OF COMPLETION

This certificate awarded to

George Angel

for satisfactory participation in

**DOT Hazardous Materials Transportation
Online Training**

Awarded on May 29, 2008.

Joni Hurdick

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CERTIFICATE OF COMPLETION

This certificate awarded to
George Angel

for satisfactory participation in the online course
IATA Dangerous Goods
IATA DGR Section 1.5 - 4 Contact Hours)

Awarded on Jul 13, 2010.



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George Angel

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