

WESTBURY FIRE DEPARTMENT



PROBATIONARY DRILL

Introduction to
Self Contained
Breathing Apparatus
or – **(S.C.B.A.)**



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Why in the Fire Service do we need SCBA:

1. **Fires** – (products of combustion & super heated air)
2. **O2 deficient environments** – (below grade/confined spaces) <17% O2
3. **Haz-Mat** – (CO, H2S...)



We wear a SCBA to protect our respiratory track , prevent user from inhaling Hazardous Materials and provides user O2 in an environment that has limited Oxygen.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Does a SCBA have limitations?

Yes - 2 Types

1 – The Limitations of the **Equipment**

And – more of a factor

2 – Limitations of the **Wearer**



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Does a SCBA have limitations:

The Limitations of the Equipment

Air Supply - Bottle 30, 45 or 60 min

Supply of air – More supply = bigger bottle
- *and how full was it when you started?*

Temperatures – Weakest link of SCBA
or even our turn out gear Is the Face Piece –
rated to temperatures of **about 535°F.**



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Does a SCBA have limitations:

The Limitations of the **Users**

- Physical Shape of user
- Psychological – or comfort level w/ SCBA
- Training & Experience
- Task being preformed
- Stress Levels with task performing.



All will have an effect on the limitations of the SCBA and it's effectiveness.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Does a SCBA have limitations:

The type of SCBA bottle will also have an effect on the user.

30 min bottle – 23 lbs

60 min Bottle – 30 lbs

Will the user having this extra 7 lbs on their back effect the user? **YES**



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



SCBA Components:

Face Piece:

Head Straps

Both Sides

Voice Emitter

Both Sides

Head Harness

Nose Cone

Head Straps

Both Sides

Regulator Adapter Port



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Heads Up Display – HUD

Only on New Air Pack 75's (962, 966, 969's Packs)

Purge Valve

SCBA Components:

Low Pressure Regulator :

100psi to > normal atmospheric
Pressure = **Positive Pressure**
Keeping contaminants from
Entering face piece.

Low Pressure Hose



Face Piece Lock Tab

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



SCBA Components:

MASK : Face Piece & Low Pressure Regulator together = Mask

Donning Switch

Low Pressure Regulator –

Has a built in **Viber-Alert Alarm** that Vibrates the MASK at 1125 psi or ¼ tank of air.



Note:

Purge Valve

At 12:00

At off position

Turn away from
You to open

WESTBURY FIRE DEPARTMENT



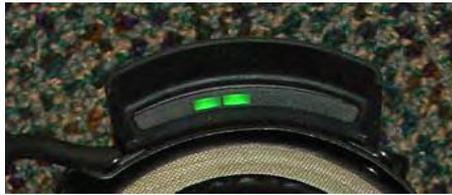
PROBATIONARY DRILL

SCBA Components:

Head Up Display – (again only found on our New SCBA's)



When you turn on SCBA –
Assure you get all lights as it cycles



Full bottle



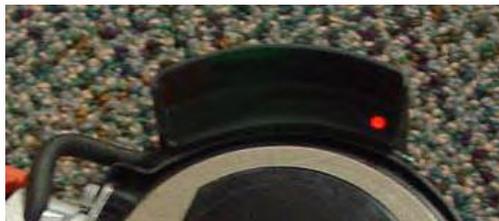
$\frac{3}{4}$ bottle



**$\frac{1}{2}$ bottle
Light blinks slowly**



**$\frac{1}{4}$ bottle
Light blinks rapidly**



Low Battery - for head up display

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Pack Components:

Shoulder straps Adjustment

Both Sides

Cylinder

Shoulder Straps

Both side

Cylinder Latch

Harness

Holds it all together

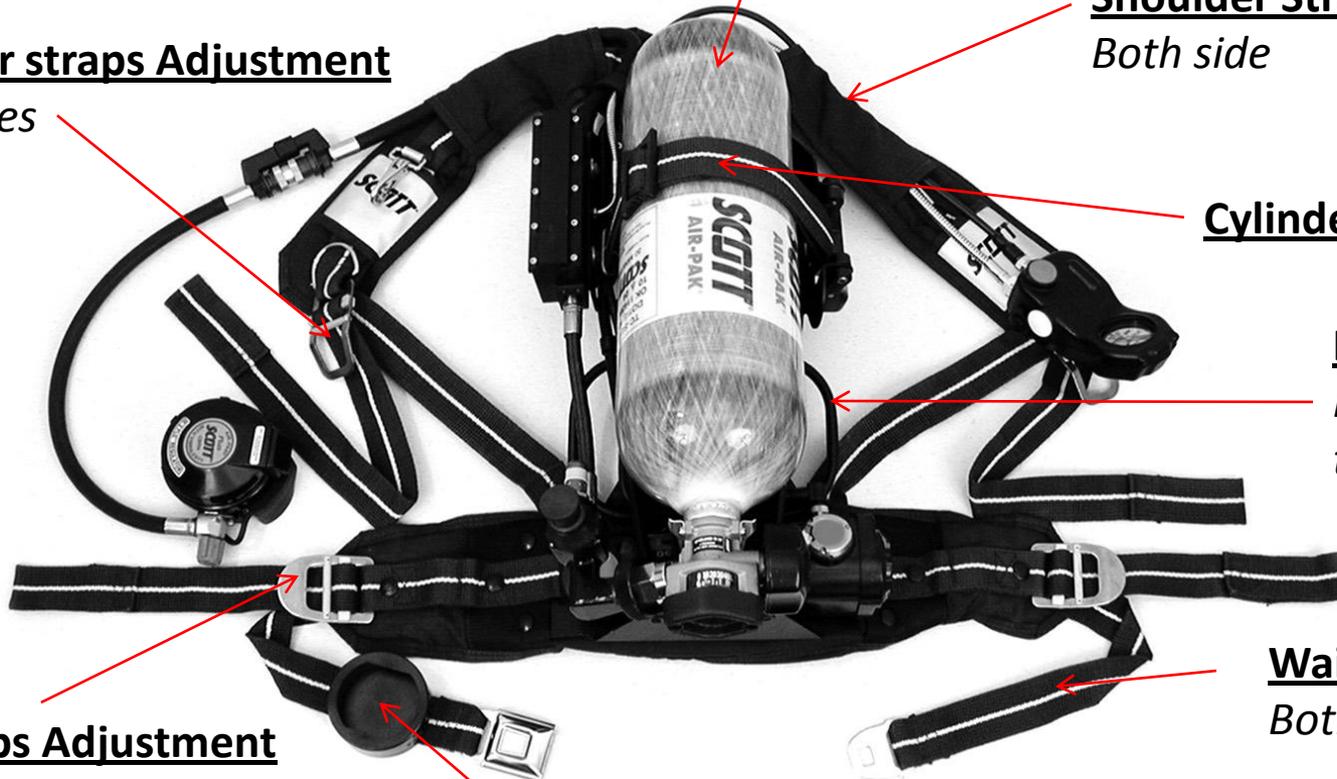
Waist straps Adjustment

Both Sides

Low Pressure Regulator Holder

Waist Straps

Both side



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Pack Components:

Emergency Breathing Support System - EBSS

Not on Westbury's SCBA but Out There – covered in F.A.S.T. Training

Low Pressure Hose

Low Pressure Regulator

Universal Air Connection

Cylinder

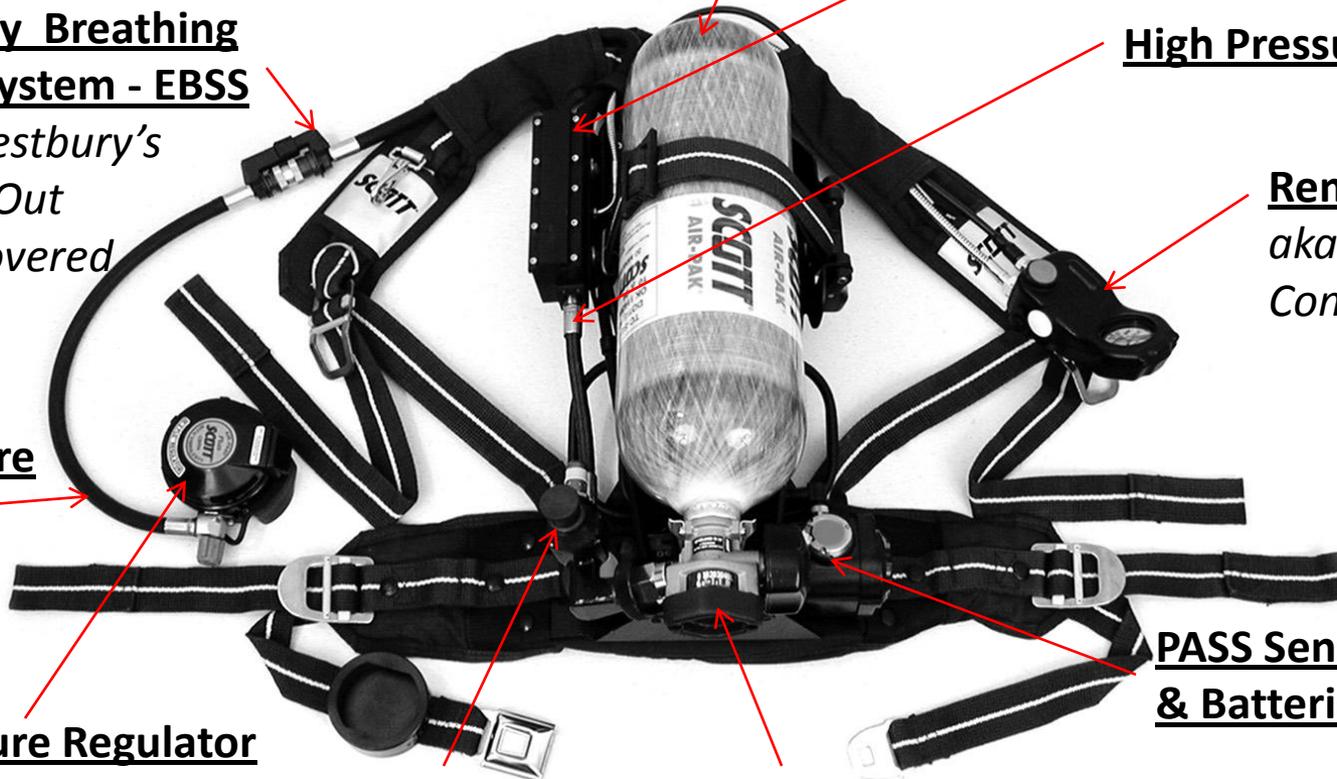
High Pressure Regulator
4500 psi – 100 psi

High Pressure Hose

Remote Gauge
aka Control Console

PASS Sensor Module & Batteries

Cylinder Pressure Gauge



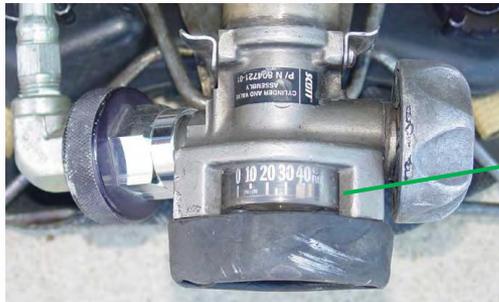
WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Remote Gauge:

On Left (aka life) shoulder



*There shouldn't be > 100 psi
Difference between
Bottle Gauge & Remote Gauge*



Remote Pressure Gauge

Manual PASS Alarm
Activator Button

Warning Light

PASS Manual Reset
Button

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Check Harness for cracks or broken welds



Look At "O" Ring condition
If damaged or missing
Pack should be Placed OOS



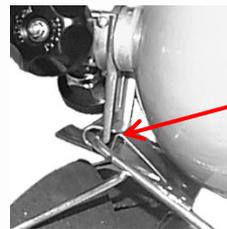
Cylinder
Latch



Connect High Pressure Hose to Cylinder



then affix cylinder to the harness
(bottle neck & cylinder Latch)



Assure Cylinder is FULL – First

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Open both side's shoulder straps
*Leave enough strap exposed that
on can grip strap with gloves on.*

Do the same to the Waist Strap

Note: *All Straps should be free of
Cuts or Damage.*

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



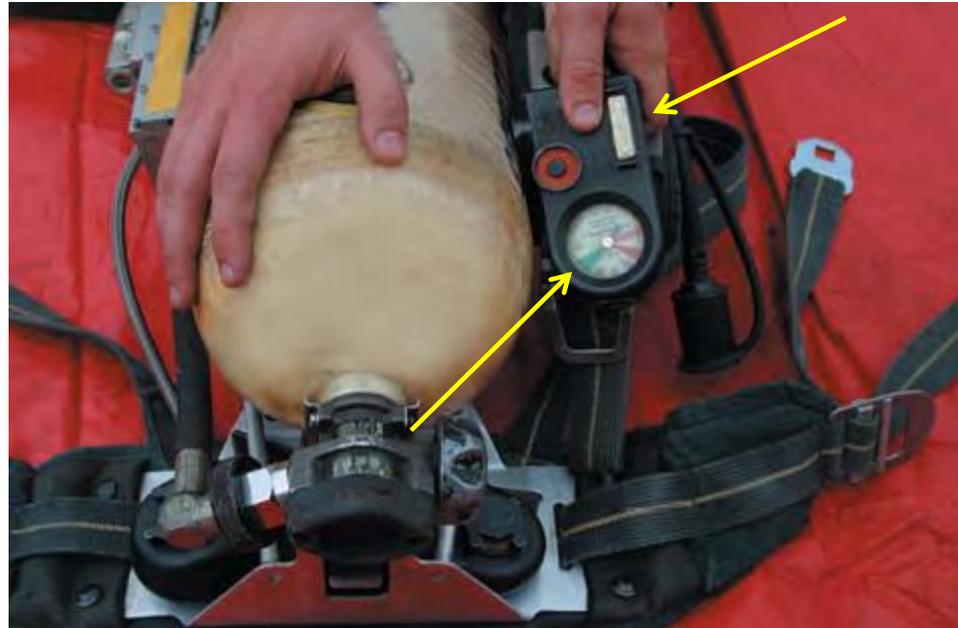
Checking a SCBA:

Assure Warning Light
Is Flashing Green



Turn Cylinder on

*Make Sure you Stop
Air flow
With the Donning
Switch - You should
listen for packs
audible Crips*



Compare Cylinder Pressure Gauge
to the remote pressure Gauge
Pressure shouldn't vary by > 100psi



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



If you are inspecting a SCBA w/ a Heads Up Display
As you turn on cylinder - watch the heads up display
make sure all the lights cycle and are operating
before you compare the Cylinder Gauge to Remote Gauge

If you don't do this – within about 10 seconds you'll miss
the lights cycle and will need do this over.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



With System pressurized and Air flow stopped
Check all hoses for leaks by feeling and listening for
air leaks

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Manually Activate PASS Alarm
Assure Alarm Sounds and warning light goes from Green to Flashing Red
Then - Manually Reset PASS

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Check Conditions of Face Piece
Assure Nose Cone Connected

Note: finger remains of Donning Switch



Connect face piece to regulator,
then take a few breaths,
pull face way – *assure constant
flow of air when pull face away* -
then stop air flow with Donning Switch

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Let the SCBA stay motionless to assure PASS Alarm goes from warning mode to Full activation, then Manually reset PASS Alarm

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Turn the Cylinder Off

Then watching the Remote Pressure Gauge
Test The Purge Valve by opening it – **Slowly**
this release the air in system
Assure Viber- Alert activates at ¼ tank.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:



Full bottle



$\frac{3}{4}$ bottle



$\frac{1}{2}$ bottle
Light blinks
slowly



$\frac{1}{4}$ bottle
Light blinks
rapidly

If the pack has a Heads Up Display –

You should also be checking these lights to assure they match the Remote Gauge's pressure.

It is good practice to close the Purge Valve when a light changes then compare to what the remote gauge is reading



This should also be done when Viber Alert Activates, Stop flow by closing Purge Valve and review Pressure At the remote gauge.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Checking a SCBA:

Once all the air is purged from the system
make sure you turn Purge Off.
Returning the knob to 12:00



Press Manual Reset Until –
SCBA completely turns off.
Verify by assuring Warning light is
no longer flashing.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Now that we know we have a properly check a SCBA:

How do we put a SCBA on? aka: DONNING A SCBA

When we Wear our SCBA – it will **ALWAYS** be accompanied with FULL Turn Out Gear:

Bunker Pants/Boots
Flash Hood
Turn Out Coat
Firefighting Gloves
Helmet w/ Chin Strap



WESTBURY FIRE DEPARTMENT



PROBATIONARY DRILL

How do we Put a SCBA on aka: **DONNING A SCBA ?**

All accomplish getting the shoulder straps over our shoulders – Step # 1



From Apparatus Seat
Probably our #1 used method



Over the Head Method



Coat Method

Do not tighten – your shoulder straps yet!

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A SCBA

Bring your waist straps around
and buckle together

*Bring weight of pack to your hips
(upper part of Buttocks)*

Then Secure Waist Straps firmly to your body.



If you tighten your shoulder straps first the weight of the SCBA will be carried by you shoulders and back.

Tightening your waist strap first the weight of the SCBA is now carried by you legs and you will fatigue much slower.

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A SCBA

Once waist straps is tight to you body:

Pull shoulder straps evenly way from you
this bringing SCBA to you body

You want to secure so there is no bounce
but not so tight it's restricting



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A SCBA

Once the pack is Secure to our body:

Reach to your back with our right hand
Finding the cylinder gauge
And turn on the Air supply
Will need to turn towards you
Turn it on all the way

*Why force air through a small hole when opening
completely make a bigger hole?*

Remember we'll need to stop the air
flow with the Donning Switch
on the Low Pressure Regulator

Are we now Ready to Mask Up ?



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A SCBA

Lets not forget –

a good number of times we are not doing a complete checking of the SCBA before we use it, *we are putting faith the last person checking it did it properly and that no problems occurred from then until now?*

So - When we turn the air on, we need to listen for the audible alarm and air leaks, look at our Air Supply at both the remote gauge and Heads up display (if that SCBA has one) - before we commit any further!

If we notice any potential issues, this is when we want to either correct them or find another SCBA to use.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A FACE PIECE

When we know the SCBA is Good:

We can now Don our Face Piece:

Our Personal Face pieces – should be stored with the straps fully open
Leaving enough strap to grab and pull tight

When we don the face piece we lead with the chin or – chin first
Then forehead
Then Head Harness

Note: All Class A Members will be issued personal Face Pieces – Annual Fit testing determines the size required.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A FACE PIECE ?

When we know the SCBA is Good:

When the Head harness is completely over our head:

We start tightening the bottom head straps
First – equally
Pulling back on both sides at the same time

The mask should be snug to you face

(*Think back to your fit testing
- how tight was your mask to pass?)*



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A FACE PIECE ?

When we know the SCBA is Good:

Once the bottom straps are tight:

Then we'll do the same to the top straps.

Once entire face piece is secure –
we can test the seal by placing our
Hand over opening and take a breath in

If we can get air in from around the face
Piece, we'll need to tight all the straps
Until we can't.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A FACE PIECE ?

When we know the Seal is good:

We can pull our flash hood up over our Face Shield – so no bare skin is exposed.

Then we'll put on our helmet and Secure our chin strap.

At this point we're ready to go to work, *once we put our gloves on, of course!*



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DONNING A FACE PIECE ?

Once we are ready to enter that smoke filled environment, hot zone, confined space...

All we need to do is connect the Low Pressure Regulator to our Face Piece and we're ready to go to work.

Remember if we connect as we walk to these environments all we are doing is wasting precious air that we could be using as we operate performing our task.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Removing a face piece or DOFFING the FACE PIECE ?

To remove your Face Piece:

This first begins with removing the Low Pressure Regulator from the Face piece.

You'll need to release the **Face Piece Lock Tab** before you can twist the regulator from the face piece.

Once the regulator is off, you'll need to press the Donning Switch down to stop the air flow.



**Face Piece
Lock Tab**

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



DOFFING the FACE PIECE ?

Once the Regulator is removed from the Face Piece:

You can remove your helmet and pull
Your flash hood down around your neck



Then you can loosen the face piece straps
- doesn't need to be 100% open, just enough
to loosen from your face.

You then be able to lift from chin upwards
Removing face piece complete from face.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Removing the SCBA or DOFFING the SCBA?

Once you Mask (Face Piece/Low Pressure Regulator)
have been removed:

You can then remove your SCBA

This start with unbuckling the waist straps
Then loosen the shoulder straps.

You'll then be able to take the SCBA off, the same
way you would a coat, off one arm then the other.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Removing the SCBA or DOFFING the SCBA?

Once SCBA is off your body:

You turn off the cylinder

Purge the remaining air from the system,
aka bleeding the system.

Then press the PASS Reset on the side of the Remote Gauge. You want to assure the Warning light is not blinking green, if so the PASS alarm is still active and will alert in time.

You'll need to press until you hear the clicks and the Green flashing light stops completely.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Cylinder Changes

Cylinder Changes can be done one of **2 ways**:

1. with SCBA still on the wearer back
another member changes out the cylinder
(manpower availability)
2. **You as the user** changes the cylinder after
removing the SCBA from your body.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Cylinder Changes

Things to Note about Cylinder Changes:

- after getting a cylinder change, don't freelance back into the incident. Be accounted for and get assigned through staging. *Your officer is expecting you to be out of the structure.*
- You should seek medical clearance before getting your second cylinder change: issues such as exhaustion, dehydration... may be setting in and you may not be unaware. Going back in without medical clearance, you are be looking for trouble!



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Cylinder Changes

Thing to Note about Cylinder Changes:

- when we pull a spare cylinder from an apparatus, we want to make sure Cylinder neck is facing outwards so we can read pressure before we use.
- we need to insert the empty cylinder with neck into the apparatus to assure members don't inadvertently use as a full cylinder.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



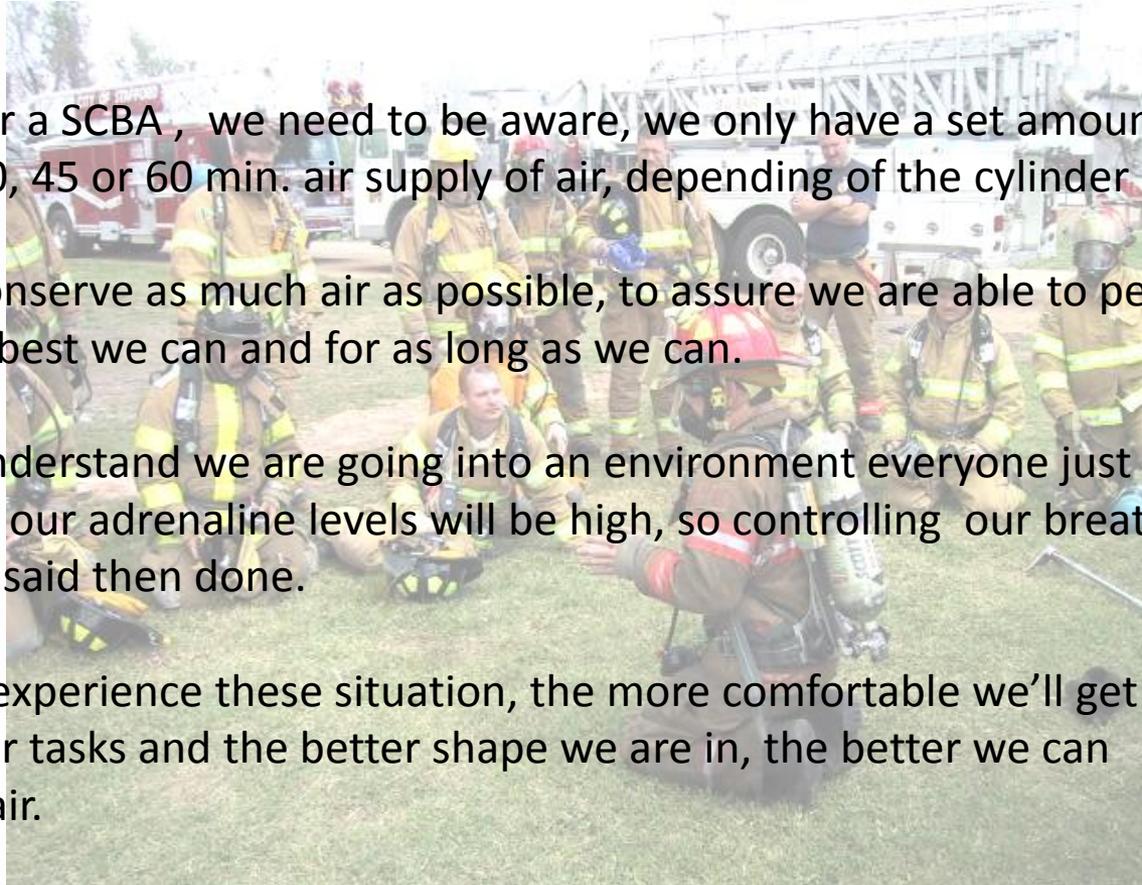
Controlling Your Breathing while Wearing a SCBA

When we wear a SCBA , we need to be aware, we only have a set amount of supplied air 30, 45 or 60 min. air supply of air, depending of the cylinder used.

We need to conserve as much air as possible, to assure we are able to perform our tasks, the best we can and for as long as we can.

We need to understand we are going into an environment everyone just ran out of and our adrenaline levels will be high, so controlling our breathing may be easier said then done.

The more we experience these situation, the more comfortable we'll get performing our tasks and the better shape we are in, the better we can conserve out air.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Controlling Your Breathing while Wearing a SCBA

Some techniques in controlling your breathing are:

1. In through Nose out through Mouth

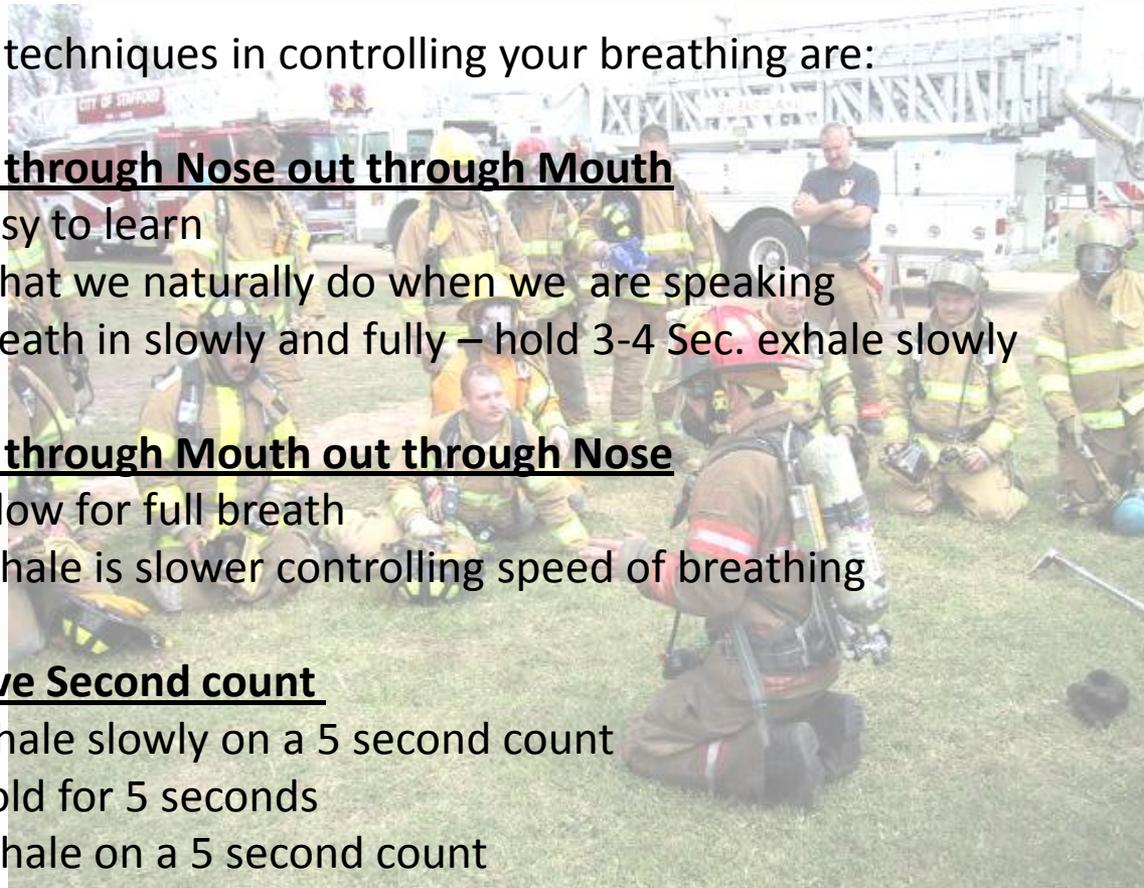
- Easy to learn
- What we naturally do when we are speaking
- Breath in slowly and fully – hold 3-4 Sec. exhale slowly

2. In through Mouth out through Nose

- Allow for full breath
- Exhale is slower controlling speed of breathing

3. Five Second count

- Inhale slowly on a 5 second count
- Hold for 5 seconds
- Exhale on a 5 second count



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



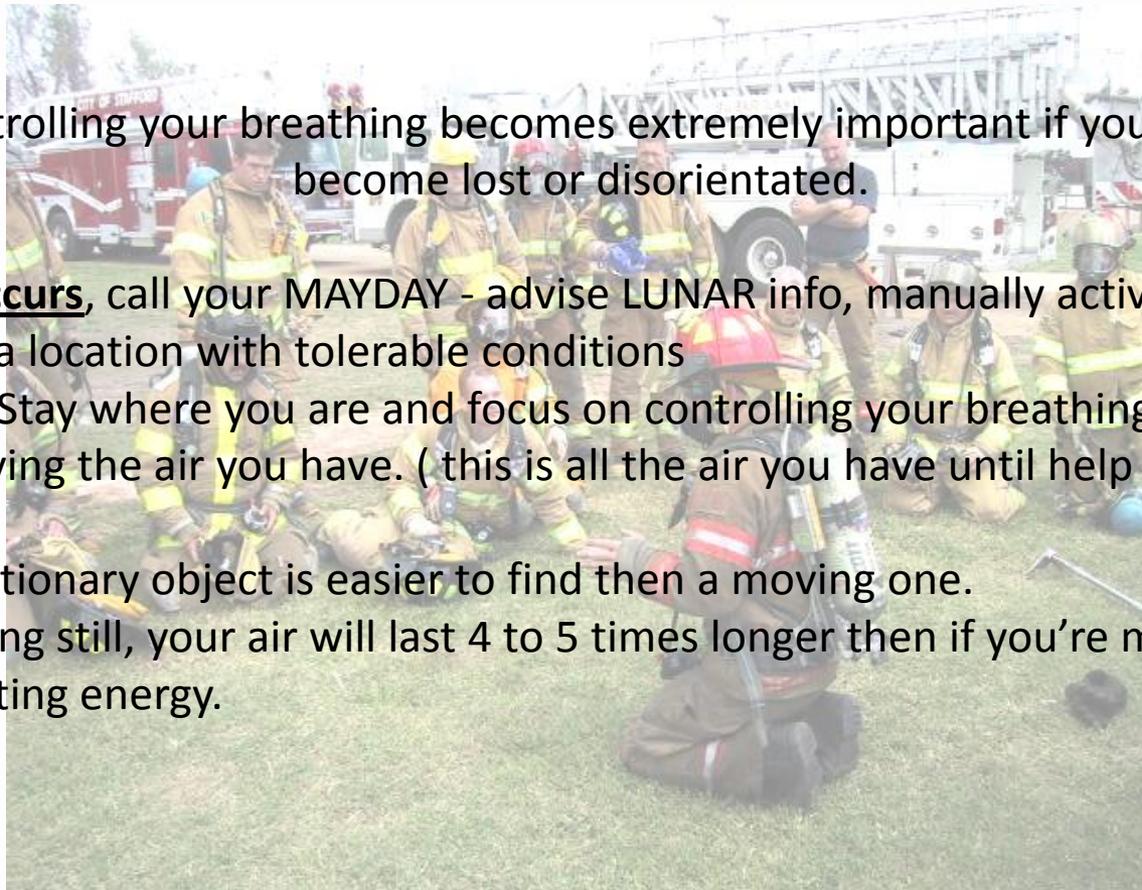
Controlling Your Breathing while Wearing a SCBA

Controlling your breathing becomes extremely important if you ever become lost or disorientated.

If this occurs, call your MAYDAY - advise LUNAR info, manually activate PASS

- Get to a location with tolerable conditions
- **Then** - Stay where you are and focus on controlling your breathing, conserving the air you have. (this is all the air you have until help arrives)

1. A stationary object is easier to find than a moving one.
2. Staying still, your air will last 4 to 5 times longer than if you're moving exerting energy.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



SCBA Entanglement

If you SCBA becomes entangled:

- Stop forward movement !!! – **DON'T FORCE WAY FORWARD**
- Take one step back (identify the entanglement hazard, if possible)
- Roll to your left side w/ your S.C.B.A. cylinder at or near the floor.
- Rotate you arm (beginning at your waist) in a backstroke swimming motion.
Lift entanglement up and over your head/cylinder
Once free - Proceed forward
- Notify other crew members of the hazard – assist as necessary

If still unsuccessful:

Rotate ¼ turn clockwise (Continue to rotate until obstruction is identified)

CAUTION: Do not rotate more than half way around.

- disentangle may require you to cut the obstruction using **tools in your pocket!**

If you entanglement requires you to remove your SCBA harness:

Consider calling a **MAYDAY** : depending on your air supply, how far you are in structure ... time may be wasting ! (*how long will it take to get free?*)

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL

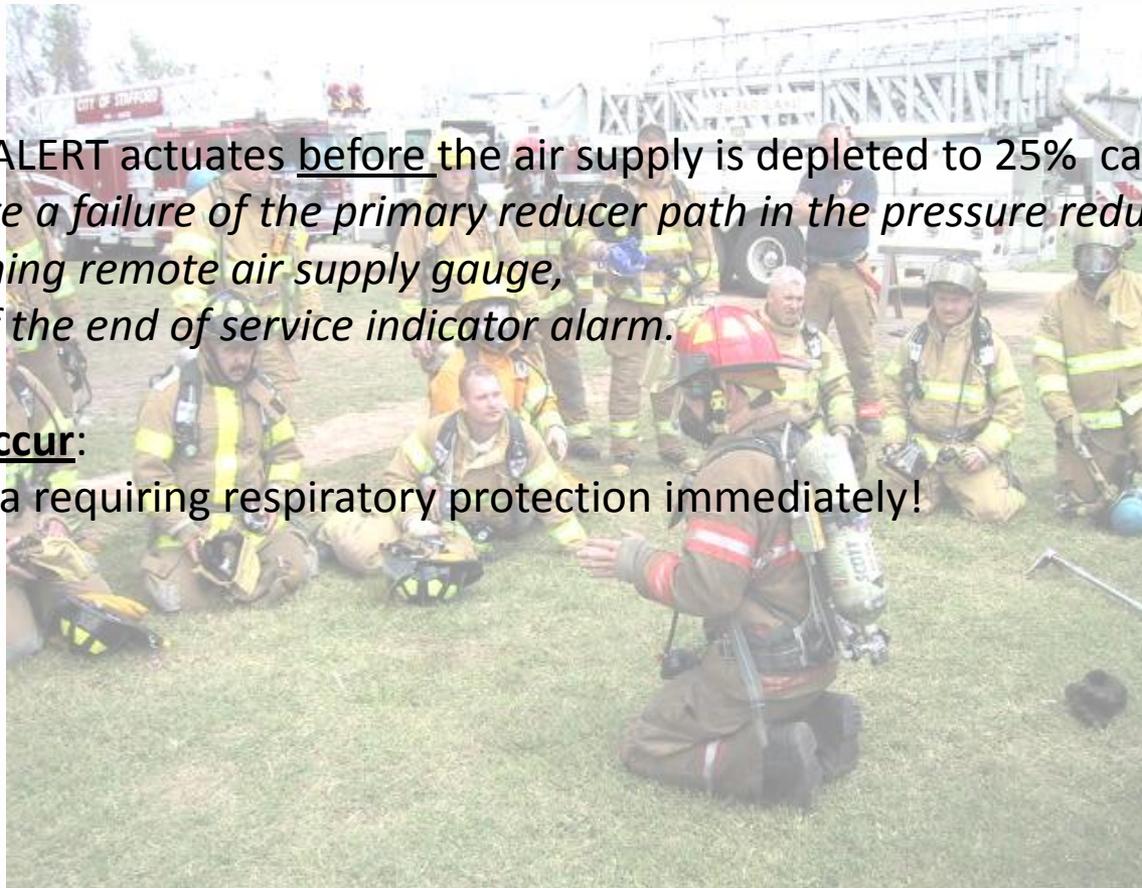


Emergency Procedures

IF the VIBER-ALERT actuates before the air supply is depleted to 25% capacity, *it may indicate a failure of the primary reducer path in the pressure reducer, a malfunctioning remote air supply gauge, or a failure of the end of service indicator alarm.*

If this does occur:

Leave the area requiring respiratory protection immediately!



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Emergency Procedures

Whenever an emergency come up with your SCBA:

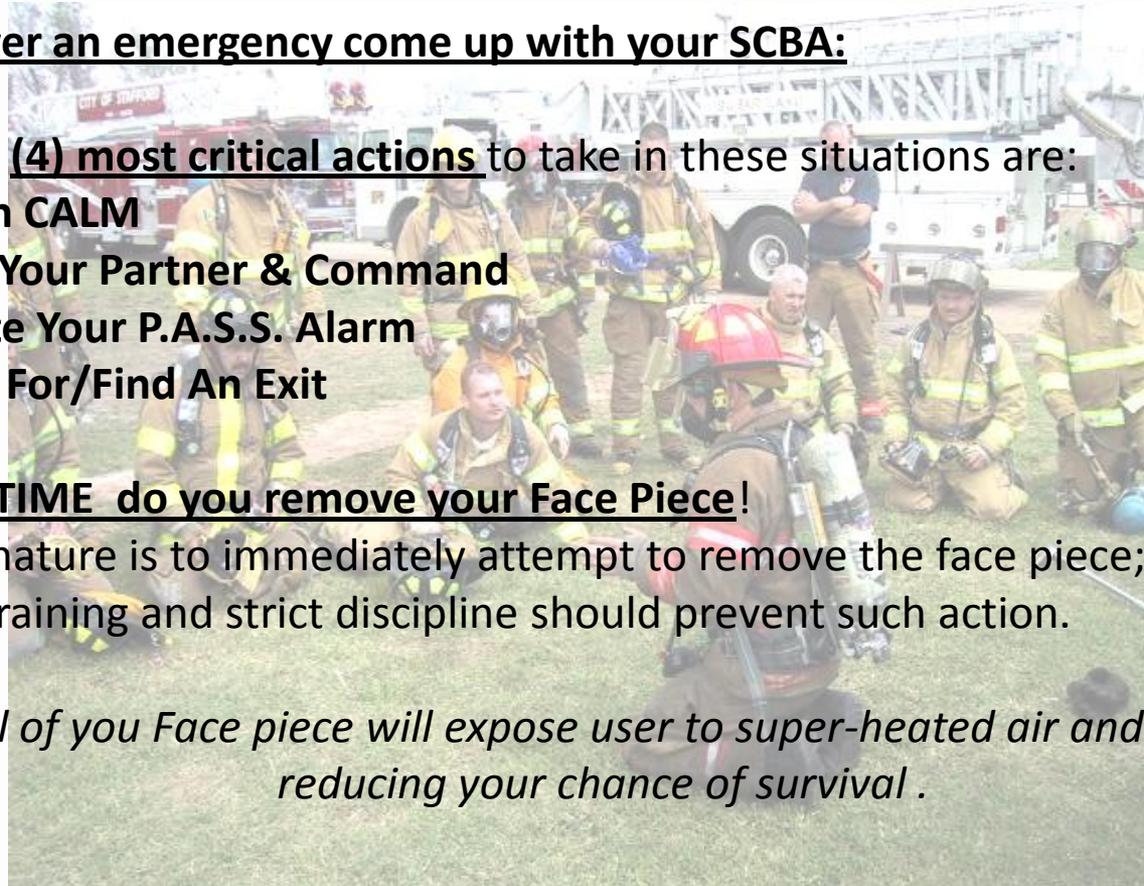
The four (4) most critical actions to take in these situations are:

- **Remain CALM**
- **Notify Your Partner & Command**
- **Activate Your P.A.S.S. Alarm**
- **Search For/Find An Exit**

AT NO TIME do you remove your Face Piece!

Human nature is to immediately attempt to remove the face piece; proper training and strict discipline should prevent such action.

Removal of you Face piece will expose user to super-heated air and toxic gases reducing your chance of survival .



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Emergency Procedures

Whenever an emergency come up with your SCBA:

Air Supply Stoppage –

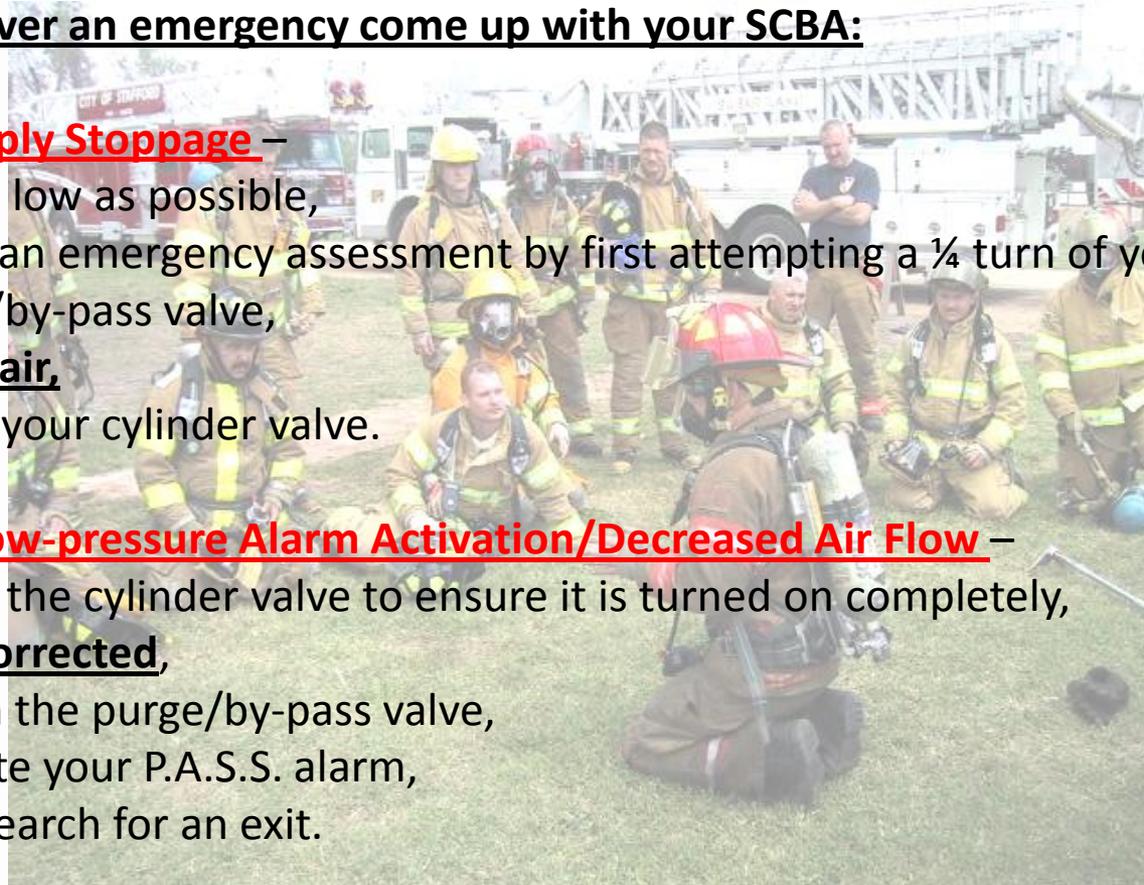
- Get as low as possible,
- begin an emergency assessment by first attempting a ¼ turn of your purge/by-pass valve,

Still no air,

- check your cylinder valve.

Early Low-pressure Alarm Activation/Decreased Air Flow –

- Check the cylinder valve to ensure it is turned on completely,
- if not corrected,
- ¼ turn the purge/by-pass valve,
 - activate your P.A.S.S. alarm,
 - and search for an exit.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Emergency Procedures

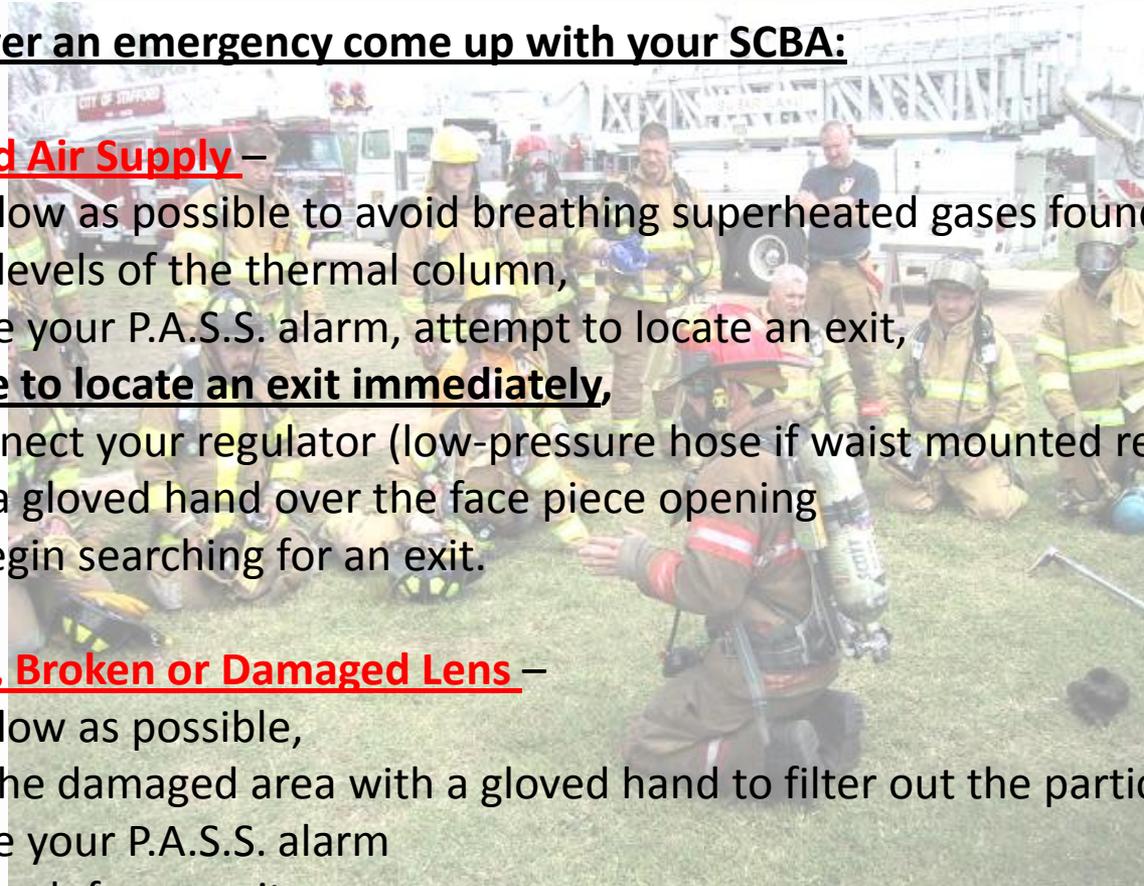
Whenever an emergency come up with your SCBA:

Depleted Air Supply –

- Get as low as possible to avoid breathing superheated gases found in the upper levels of the thermal column,
- activate your P.A.S.S. alarm, attempt to locate an exit,
- **if unable to locate an exit immediately,**
- disconnect your regulator (low-pressure hose if waist mounted regulator)
- place a gloved hand over the face piece opening
- and begin searching for an exit.

Cracked, Broken or Damaged Lens –

- Get as low as possible,
- cover the damaged area with a gloved hand to filter out the particulate matter,
- activate your P.A.S.S. alarm
- and search for an exit.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Emergency Procedures

Whenever an emergency come up with your SCBA:

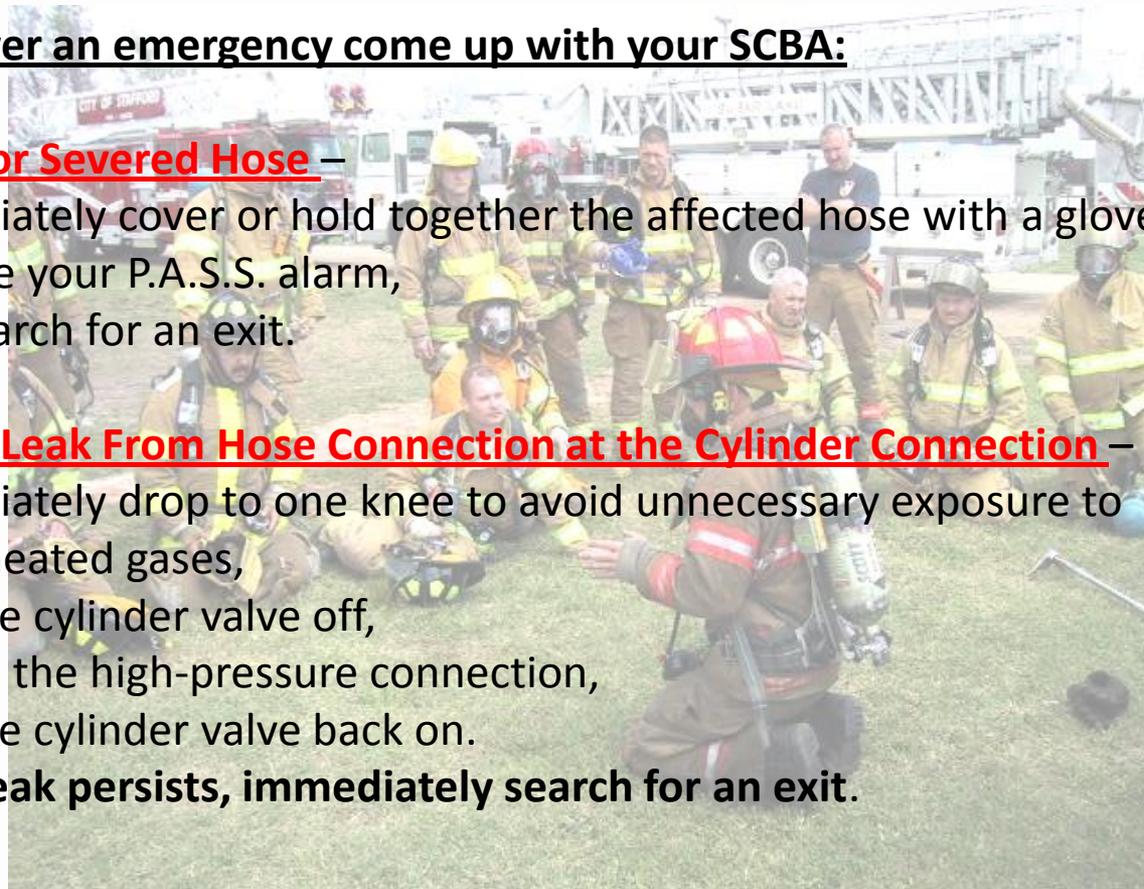
Ripped or Severed Hose –

- Immediately cover or hold together the affected hose with a gloved hand,
- activate your P.A.S.S. alarm,
- and search for an exit.

Audible Leak From Hose Connection at the Cylinder Connection –

- Immediately drop to one knee to avoid unnecessary exposure to superheated gases,
- turn the cylinder valve off,
- tighten the high-pressure connection,
- turn the cylinder valve back on.

If the leak persists, immediately search for an exit.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL

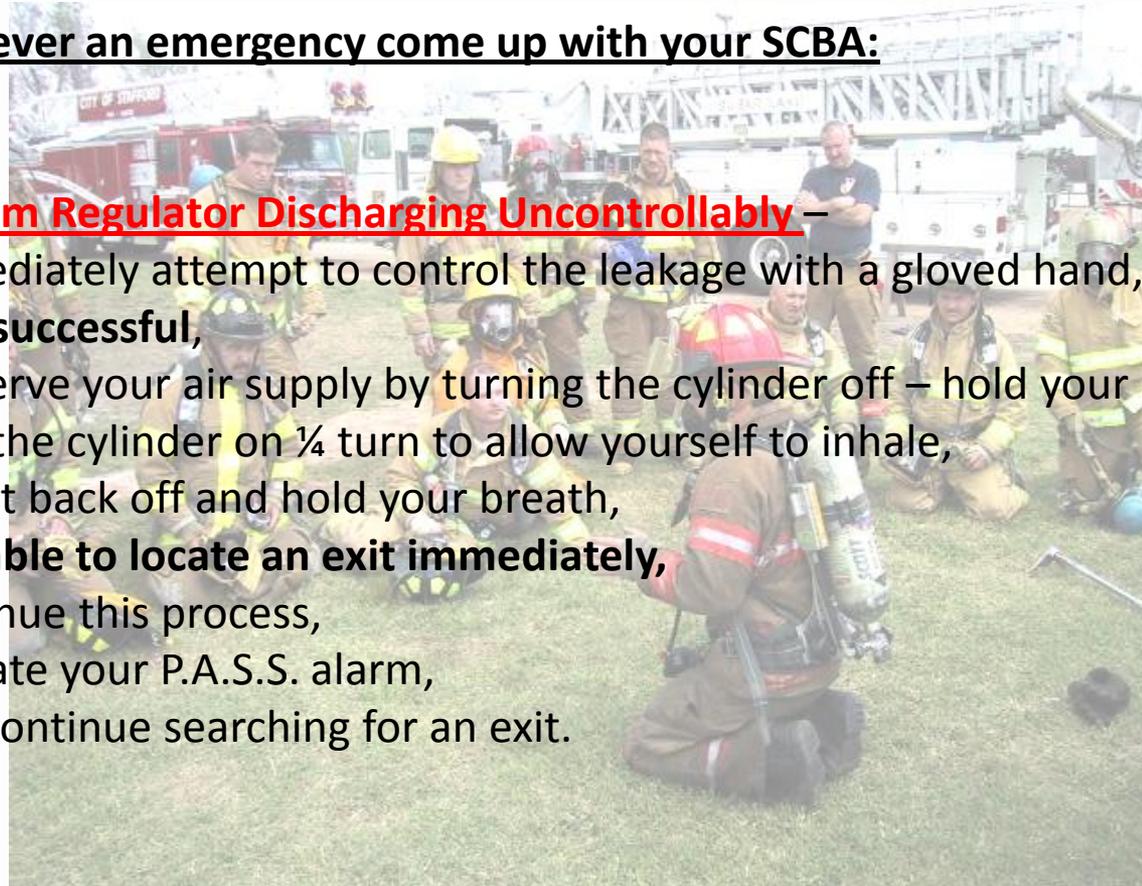


Emergency Procedures

Whenever an emergency come up with your SCBA:

Air From Regulator Discharging Uncontrollably –

- Immediately attempt to control the leakage with a gloved hand, **if unsuccessful,**
- conserve your air supply by turning the cylinder off – hold your breath,
- turn the cylinder on ¼ turn to allow yourself to inhale,
- turn it back off and hold your breath, **if unable to locate an exit immediately,**
- continue this process,
- activate your P.A.S.S. alarm,
- and continue searching for an exit.



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Reduced Profile Maneuvers *Partial Escape*

- Fully loosen the right shoulder strap and remove it.
- **Loosen the waist strap** to allow the harness assembly to be rotated around to your left hip. (do not remove waist strap)
- Grasp the neck of the cylinder with your left hand.
- Rotate the harness assembly to the left – reducing your profile
- Proceed through the obstacle.

Don the S.C.B.A. (tighten both shoulder straps and waist belt).

Demo using SCBA and Firefighter



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Reduced Profile Maneuvers *Full Escape*

- Fully loosen the waist belt and **disconnect** the buckle, and both shoulder straps.
- Remove the right shoulder strap, then the left shoulder strap
- Maintain a firm grip on the left shoulder strap with left hand
- Reduce your profile
(rotate to the left w/ your right shoulder facing the obstacle).
- Proceed through the obstacle pulling your S.C.B.A. assembly through with your left hand.

Don the S.C.B.A. (tighten both shoulder straps and waist belt).

Demo using SCBA and Firefighter

WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Reduced Profile Maneuvers *Full Escape – Cylinder First Approach*

- Fully loosen the waist belt and disconnect the buckle, and both shoulder straps.
- Remove the right shoulder strap, then the left shoulder strap
- Maintain a firm grip on the left shoulder strap
- Reduce your profile
(Face the obstacle and place the cylinder into the opening).
- Proceed through the obstacle pushing your S.C.B.A. assembly through ahead of you – maintaining control of SCBA with your left hand.

Don the S.C.B.A. (tighten both shoulder straps and waist belt).

Demo using SCBA and Firefighter



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Wall Breach *Front Swim Maneuver*

- After opening the wall between two wall studs,
- put 1st arm through , twist to side and then put 2nd arm through opening
- twist to side, and with hands and feet push rest of body through opening.
as if you were swimming



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Wall Breach *Back Swim Maneuver*

- After opening the wall between two wall studs,
- put SCBA into opening
- twist place 1st arm through , twist to side and then put 2nd arm through opening
- twist to side, and with hands and feet push rest of body through opening.
as if you were doing the back stroke



WESTBURY FIRE DEPARTMENT

PROBATIONARY DRILL



Practical Exercise

At Training Facility we'll be:

- review checking a SCBA
- review donning a SCBA
- review donning a Mask (Face Piece/Low Pressure Regulator)
- review emergency procedures
- review some Basic Search techniques
- review reduced Profile maneuvers
- review Wall Breach Maneuvers
- review controlling breathing techniques
- review cylinder changes & putting SCBA in Service