WHAT TO EXPECT WHEN YOU'RE EXPECTING A REPORT FROM JAMES "LEAST UNTRUTHFUL" CLAPPER

It is a time pregnant with possibilities as the world awaits release of the US report on chemical weapon use in Syria. Today's Washington Post informs us that we may see the report as soon as tomorrow:

> The Obama administration believes that U.S. intelligence has established how Syrian government forces stored, assembled and launched the chemical weapons allegedly used in last week's attack outside Damascus, according to U.S. officials.
>
> The administration is planning to release evidence, possibly as soon as Thursday, that it will say proves that Syrian President Bashar al-Assad bears responsibility for what U.S. officials have called an "undeniable" chemical attack that killed hundreds on the outskirts of the Syrian capital.
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> The report, being compiled by the Office of the Director of National Intelligence, is one of the final steps that the administration is taking before President Obama makes a decision on a U.S. military strike against Syria, which now appears all but inevitable.

Wait. What?

Marcy already mused on all the talking heads focusing on how a US response to Assad using chemical weapons on Syrian citizens is all about our "credibility". If the US response is so tied

up with credibility, how on earth can it be that the person charged with compiling the report on which we will base military action is the man whose obituary will be obliged to mention his admission that he lied to Congress, but that we should excuse the lies because he gave the "least untruthful" version possible? That is how the US will convince the world that, unlike when we lied about Iraq having WMD's before we invaded, this time we aren't lying about Assad?

Note also that Marcy mentioned yesterday that the US, through John Kerry, tried to prevent the UN carrying out its own investigation into the chemical weapon evidence. That move undercuts US efforts at credibility since outside, independent confirmation of findings would be a huge step in providing assurance that the US is being truthful.

The UN effort continues today, with the delegation of inspectors visiting a different Damascus suburb than the one they visited on Monday. (See the map in this BBC article for the sites at which chemical weapons were accused of being used in the attack.)

We get a bit of information from AP on how the UN team is operating:

> The U.N. chemical weapons experts conducted their first field testing in the western Damascus suburb of Moadamiyeh on Monday. They collected samples and testimony after a treacherous journey through government and rebel-held territory. Their convoy was hit by snipers but members of the team were unharmed.

The ability of the UN team to interview victims (which is presumably how they got "testimony") and then to take their own samples is a key part of making their work believable. Both environmental samples at the sites of attack and biological samples from the victims play a role in identifying whether and what chemical agents

were used. See this informative piece from FAS on descriptions of symptoms that the investigators would be looking for when interviewing victims.

When Clapper finally releases the US report, one of the most important aspects in that report will be the provenance of any samples the US subjected to chemical analysis. We don't have acknowledged "boots on the ground" in Syria, so how did the US get samples? What certifications, if any, are there on chain of custody documentation on those samples? As with most other accounts of the chemical attack, the AP article linked above mentions that Doctors Without Borders has documented the number of dead and injured from the attack. Samples and documentation coming from them would be seen as having a much greater level of independence than samples provided by the rebel groups that control the territory where the attacks are said to have taken place.

Even though their main website has been taken down, reportedly by the Syrian Electronic Army, the New York Times is continuing its reporting on the situation in Syria. An article published yesterday afternoon provides some useful background information on the ability of modern forensic methods to detect chemical agent use long after the fact:

> Scientists have discovered that sarin, a deadly nerve agent, can be detected long after its use on the battlefield. In one case, forensic experts went to a Kurdish village in northern Iraq four years after Iraqi warplanes had dropped clusters of bombs there. The experts found a unique chemical signature of the lethal toxin in contaminated soil from bomb craters.

The article does stumble pretty badly, though, when trying to explain the instruments at the heart of these analyses:

> Identifying the exact makeup of toxic chemicals, especially in the field under less-than-ideal conditions, can be a tricky process rife with false alarms. But sending the field samples to distant laboratories for more thorough analysis can typically provide unambiguous answers to warfare allegations.
>
> Experts say two large, complex instruments lie at the heart of advanced chemical detection: the gas chromatograph and the mass spectrometer. The chromatograph breaks up chemicals into their components, and the spectrometer identifies them by comparing them to libraries of known substances.

What Broad completely misses here is that these analyses are carried out by single instruments that combine both gas chromatography and mass spectrometry so that they run one after the other. The statement that gas chromatography "breaks up chemicals into their components" misses the mark entirely. The problem is that the samples injected into the instrument are not single chemicals. Instead, the sample is a mixture of many unknown molecules. The gas chromatograph separates the mixture into its individual chemical components. It is not the chemicals themselves that are being broken into their components but mixtures that are being broken into individual components.

If you have ever noted how a drop of water on a page can sometimes separate ink into different colors, you have seen the analytical method of chromatography in action. As water has carried the ink through the paper, different colored ink molecules have moved along the paper at different speeds, allowing them to be separated. In a similar way, the gas chromatograph takes a sample composed of a mixture of different molecules (the mixed inks), heats them to the gas phase and then allows them to move along a column of support material (the paper) so that

what comes out the other end of the column are “peaks” of different molecules that exit the column at different times (maybe the blue moves out faster than the black).

Instead of collecting each “peak” (called a fraction) as it comes out of the far end of the gas chromatograph column and then analyzing it to see what it is, these hybrid instruments take that output and subject it immediately to mass spectrometry. The mass spectrograph breaks molecules apart by ionizing them and then subjecting them to a magnetic force so that the components of the molecule can be identified by the ratio of their mass to the electric charge caused by the ionization. Mass spectrometry could not be carried out directly on the original sample mixture because the pattern of break-down products would be too complex to allow identification of the molecules in the mixture. Once separated, though, the individual molecules can be identified by their unique breakdown spectrum when compared to databases of known individual molecules when subjected to the same treatment.

See this interesting page for photos of what appear to be versions of these instruments designed for use in the field (upper row of photos) and versions that are laboratory-based (lower row of photos).

Of course, the proof that chemical weapons were used, as Marcy noted, is only one part of the equation and must be accompanied by evidence that moves us from the passive voice to the active voice of identifying just who carried out the attack. And that takes us once again to Mr. Least Untruthful, because SIGINT would seem to be necessary to prove that Assad’s forces carried out the attack. So far, the only leaked information on that front, as Marcy noted, shows panic in response to the attack rather than orders to carry it out.

But not to worry. As we have learned from Edward Snowden, systems administrators in our surveillance programs can move undetected

through the databases and so the needed proof should be coming along shortly.

How credible will the proof be?