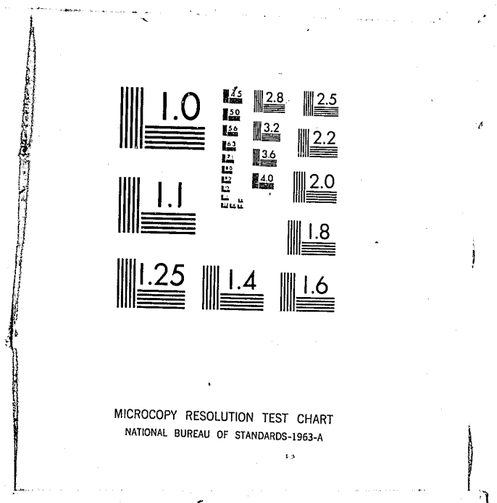

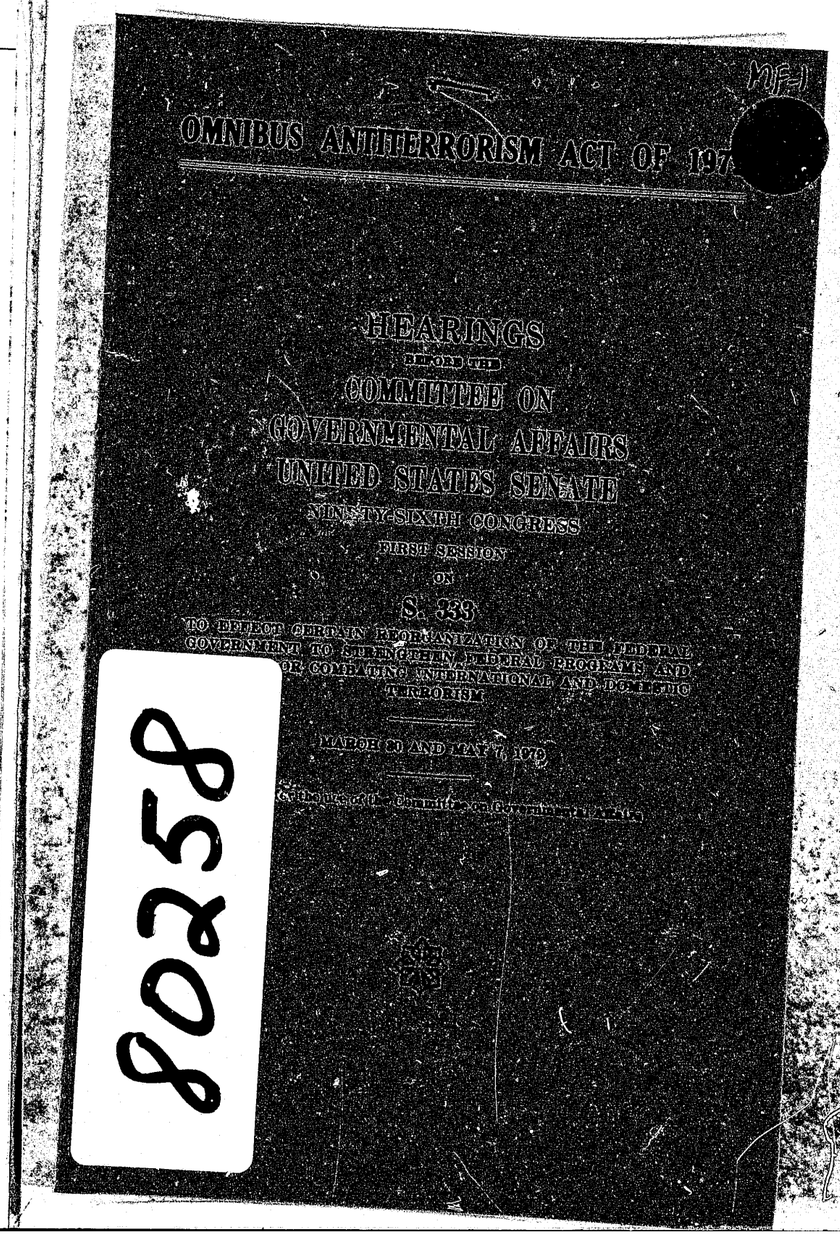

OMNIBUS ANTITERRORISM ACT OF 1979

HEARINGS
BEFORE THE
COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE
NINETY-SIXTH CONGRESS
FIRST SESSION
ON

S. 333

TO EFFECT CERTAIN REORGANIZATION OF THE FEDERAL GOVERNMENT TO STRENGTHEN FEDERAL PROGRAMS AND POLICIES FOR COMBATING INTERNATIONAL AND DOMESTIC TERRORISM

MARCH 30 AND MAY 7, 1979

Printed for the use of the Committee on Governmental Affairs

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OMNIBUS ANTITERRORISM ACT OF 1979

FRIDAY, MARCH 30, 1979

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met, at 9:30 a.m., in room 3302, Dirksen Senate Office Building, Hon. Abraham A. Ribicoff (chairman of the committee) presiding.

Present: Senators Ribicoff, Levin, and Javits.

OPENING STATEMENT OF SENATOR RIBICOFF

Chairman RIBICOFF. I am pleased to reopen hearings on the antiterrorism bill. Senator Javits and myself still believe that this is a most important piece of legislation that will directly address a persistent and urgent problem—how the U.S. Government can better combat ruthless and destructive acts of terrorists not only in our own country but also in foreign states.

Terrorism is with us. Apparently it will stay with us. And I do believe that all of us have a responsibility, both the legislative and executive branch, to do everything we can to stamp out and deter terrorism.

[The prepared statement of Senator Ribicoff follows:]

PREPARED STATEMENT OF SENATOR RIBICOFF

I am pleased to reopen hearings on the Antiterrorism bill.

It is an important bill that will directly address a persistent and urgent problem—how the U.S. government can better combat ruthless and destructive acts of terrorists not only in our own country, but also in foreign states.

At no time has the insanity of terrorism been so vividly dramatized as in this past week. It has been a week of joy and celebration, because two age-old enemies—Egypt and Israel—have signed a treaty of peace. But this tremendous accomplishment has been marred by senseless killing and destruction by terrorists in Israel, and in New York with the bombing in the baggage area at the JFK International Airport.

Terrorists have no respect for peace, for security, or for human life. They will continue their destruction until the peace-loving nations of this would get tough and fight back.

The power of terrorism is constant. It varies in form and in intensity but it is with us daily. We can read of an incident in the morning paper and quite often see its consequences on the evening news.

A small band of terrorists have the capability to coerce entire nations. They can demand money, the release of prisoners, or their own exemption from prosecution. They flaunt their illegal, immoral power, often bringing a government or an entire nation to its knees. In the kidnapping case of Aldo Moro, the entire world waited anxiously for his release, only to feel silent rage at the confirmation of this great pubic figure's death.

Our own former Ambassador to Afghanistan, Adolph Dubs, was also abducted by terrorists and brutally killed in the crossfire of a rescue attempt earlier this year.

Policemen on patrol have been gunned down in New York.

National museums, such as the one in Versailles, have been bombed.

Throughout the world, planeloads of innocent people often have been held hostage by one or two fanatics.

The entire world is asking why? The decent law-abiding peoples of the world are becoming increasingly aggravated and perplexed by these blatant violations of human rights. They are concerned by the apparent helplessness of their governments to deal forcefully with terrorism.

We are not immune. The fragile structure that American society depends upon, nuclear reactors, pipelines, centralized power plants and airports, to name a few, is a possible goldmine for terrorist activities. With each development in modern technology and modern weaponry, the terrorists's range of activities and means of attack are enhanced.

So, terrorism is of great concern to all Americans. They expect their government to do everything in its power to combat it. While some gains have been made, there is still much more we can do.

The bill before us today will provide the Federal government with more effective leverage and tools to combat terrorism. The Omnibus Antiterrorism Act will:

Induce a thorough reexamination of the current Federal structure for combating terrorism for its effectiveness, leadership, and coordination;

Better inform the Congress of acts of terrorism affecting American citizens and interests by requiring the President to report to Congress major terrorist incidents;

Enable the U.S. government to publicly list and condemn foreign nations which support terrorists' activities, and to institute strong sanctions against them;

Require the U.S. government to asses the safety and security of foreign airports used by American travelers and publicize deficiencies;

Require the tagging of explosive materials to better aid law enforcement officials in detecting and tracing bombings back to terrorists;

Implement language agreed to by the U.S. and other foreign governments at the Montreal Convention instituting stiff penalties for aircraft sabotage and piracy; and

Set priorities for the U.S. government in the negotiation of future international agreements and initiatives in combatting terrorism.

Congress has already done much work on this legislation. Four committees of the Senate cleared the bill for floor action last year after many days of extensive hearings. Several House committees also completed action, but not all in time for adjournment. The committees of both Houses gave thorough consideration to all of the issues in the bill, and worked them out in great detail. The groundwork has already been laid.

This bill will greatly increase our ability to combat terrorism. Again this year, I am pleased to have the Administration's support for the bill's concepts.

In these hearings, we will work to resolve the remaining issues in the legislation. The Committee will be looking carefully at the Federal structure to determine if it responds in a quick and coordinated fashion to a terrorist crisis. We will be studying the economic and military tools available to the President for their possible use as sanctions against countries aiding and abetting terrorists, and the most effective means of imposing them. And, the Committee will closely examine the use of taggants in explosives for their effectiveness, costs, and benefits.

But, all things considered, it is my hope that both the House and the Senate will move ahead in an expeditious and bipartisan manner. I am very pleased that a similar bill in the House is now proceeding through several committees.

As I have often said, it is better to act than to react. We simply cannot afford to delay this legislation.

Chairman RIBICOFF. Senator Javits?

OPENING STATEMENT OF SENATOR JAVITS

Senator JAVITS. Thank you, Mr. Chairman.

First, Mr. Chairman, may I say how much I appreciate my association with you on the magnificent initiative for which you are responsible, which brings us here. And I can assure the Congress and the American people that we will persist in this effort.

In view of what has happened in the Middle East, I regret to state, but it is very likely that we will see a new rash of terrorism in an effort to break the peace effort now negotiated by Israel, Egypt, and the United States, with the hope of finally stabilizing that area of the world.

And what that does in addition is to popularize terrorism as an instrument by which terrorists seek to coerce other people into doing things which they have no desire whatever to do—accept

other forms of government or other forms of authority or submit to demands to release other terrorist criminals.

So, Mr. Chairman, it is a magnificently worthwhile effort. This is indeed what the human rights effort is all about. And I am very, very pleased to be associated with you and pledge myself to work with you until we accomplish a decent stand by the United States where we really take action against countries which harbor and work with terrorists and against the terrorists themselves.

Thank you. I might say, too, if the rule of law is not going to obtain in the world as to criminals, how will it ever obtain as to criminal nations? So I thank you, Mr. Chairman, for the privilege of working with you in this matter.

Senator RIBICOFF. Gentlemen, your entire statements will be in the record. You may proceed, sir.

TESTIMONY OF AMBASSADOR ANTHONY C. E. QUAINTON, DIRECTOR, OFFICE FOR COMBATTING TERRORISM, DEPARTMENT OF STATE; RICHARD P. LALLY, DIRECTOR, CIVIL AVIATION SECURITY SERVICE, FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION; AND RICHARD J. DAVIS, ASSISTANT SECRETARY FOR ENFORCEMENT AND OPERATIONS, DEPARTMENT OF THE TREASURY

Mr. QUAINTON. Thank you very much, Mr. Chairman, members of the committee.

It has now been some 14 months since Secretary Vance first testified before this committee; 14 months in which, as you have commented, terrorism has in no way abated. In fact, it has continued with a rising tide in various quarters of the world.

It remains a great issue of concern for the Department, for my office, and indeed for the administration as a whole.

S. 333, on which we are testifying today, represents the fruits of close collaboration between a number of Government agencies and this committee and its staff over the last year.

As Secretary Vance made quite clear a year ago, we believe there is a need for effective legislation to deal with a variety of aspects of the terrorist problem. We hope that as the hearings and as the work of this committee and other committees goes forward we will be able to continue our efforts to have the most effective possible legislation.

If I might begin by commenting first on what we have done in the last year in the face of a problem which we all recognize to be an extremely grave one.

The Government structures which were created in September 1977, of which you are aware, put the entire management of counterterrorism under the National Security Council and its Special Coordination Committee. They have begun to work, in my view, with very greatly enhanced effectiveness, not only in terms of policy formulation but in our ability to handle terrorist incidents, when and as they occur and as they affect the interests of the United States.

We have created a network of effective working relationships among the 30 Federal agencies which are involved. We have clarified a number of jurisdictional issues, most recently in the memorandum of understanding signed between the Department of Trans-

portation, Federal Aviation Administration, and the Department of State.

We have been handling a range of incidents, from the seizures of consulates in Chicago and San Juan to the hijackings in Berlin and Geneva, to the kidnapping of our Ambassador in Afghanistan, on the basis of this cooperation. This is not to say every time there is a terrorist incident that we will always be successful in saving the lives of those who are the victims. Obviously in some circumstances that is not going to be possible.

This last year has not only witnessed a greatly enhanced ability inside the U.S. Government to deal with these issues but a much greater awareness internationally of the importance of cooperation in dealing with terrorism. We have been leading the search for an international consensus that certain kinds of acts are inadmissible, irrespective of the causes in which they are committed.

This effort was begun in the area of civil aviation, in an effort to reinforce the Hague, Montreal, and Tokyo Conventions. In the last year there have been over 20 new adherents to these agreements. There are now over 100 countries which are parties to them—more than almost any other international agreements.

In addition, at the meeting in Bonn last July, the heads of state or government of the United States and six of our closest allies, agreed that we would take sanctions against those states which gave sanctuary to or refused to prosecute or extradite hijackers. Every hijacking which has taken place since July has been carefully monitored by not only the U.S. Government but by other governments. I am happy to say that in all the cases to date there seems to be the likelihood that the culprits concerned will face either prosecution or extradition.

We have been working intensively to implement and to obtain additional accessions to the international convention signed in New York on the protection of diplomats and to the Organization of American States Convention, which deals also with the same question.

Finally, in Geneva just 6 weeks ago a draft convention was agreed upon in all but a few details which will outlaw the taking of hostages. This convention will be referred to the Sixth Committee of the General Assembly later this year. The United States will be taking an active role in seeing that this convention passes into international law and gets the support which we believe it deserves.

If I might turn briefly to the legislation before us, as I said at the beginning, we welcome the concept of comprehensive legislation, and we support many of the major elements of S. 333: The listing of patron states, the reporting requirements to Congress, the efforts to augment international airport security, the provision for the tagging of explosives, the encouragement to the administration to proceed with efforts to widen the international consensus with regard to terrorism, and the measures to implement the Montreal Convention.

We believe that there is a real need for comprehensive legislation, Mr. Chairman. At the moment there are a number of piecemeal measures in various other acts of Congress, which lack any common standard or any common definition, which are very difficult for the administration and various Departments of government to implement. We think a single piece of legislation which provides a clear definition of terrorism and clear measures to deal with it is badly needed.

I would, however, say that in our approach to terrorism and to the combating of it, our primary concern is that we be as effective as possible.

With this in mind, let me comment on three of the provisions of the legislation which do give us some difficulty.

With regard to the reorganization proposals, it is the administration's view that the structures which were created in 1977 and which have been working effectively obviate the need for the creation of a Council to Combat Terrorism or, indeed, the creation of additional Assistant Secretaries to deal with it. We are in a position with the new structures to do what your bill would have us do, and I believe that the reorganization proposals are not necessary at this time.

The key to dealing effectively with those states which show a pattern of support is obviously the measures we can take to change their policies and to influence behavior which we find objectionable.

S. 333 would provide a series of sanctions against those states identified by the President as demonstrating a pattern of support and would oblige the President automatically to impose those sanctions. In our view, it would be preferable if the President were able to choose those sanctions which were particularly appropriate to the situation at hand so that sanctions could be tailored to our relationship with each individual country.

This is not to say that we do not think that sanctions are important or necessary. They clearly are. With a number of states which have been known to support terrorism, we have had a strong policy of not supplying them with military equipment or equipment which might be militarily related, elements which are already in S. 333.

Our goal is to persuade states to forego their support for terrorism and, in our view—I would be happy to elaborate on this in questions subsequently—the President should have the ability to choose those sanctions which would be most suitable to the case at hand and to increase incrementally the sanctions, if that were desirable, to bring additional pressure on states which refused to change their policies in support of terrorism.

Finally, we do not believe that the proposal which is contained in the legislation, that the removal of a state from the list by the President, should be overridden by Congress by concurrent resolution. The bill authorizes the President to determine which countries should be placed on the list as pursuing a pattern of support, based on his weighing of the evidence. We believe only a full legislative act can alter those functions conferred on the President by statute. We think that this provision of S. 333 is not consistent with his constitutional authority to execute the laws. The testimony of the Department of Justice addresses this issue in greater detail.

In conclusion, Mr. Chairman, members of the committee, let me say that we stand ready to work as closely as possible with this

committee and with other committees, to achieve legislation which will meet the needs of the U.S. Government, which will respond to the concerns of the people and the Congress, and which will be effective to deal with one of the major problems of our times—international terrorism.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Quainton follows:]

STATEMENT OF AMBASSADOR ANTHONY QUAINTON, DIRECTOR
OFFICE FOR COMBATTING TERRORISM

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE:

When Secretary Vance appeared before this Committee last year, he affirmed the Administration's commitment to strong legislation which would deter terrorist attacks, enhance our ability to bring to justice those who participate in terrorist acts, and discourage other governments from aiding and abetting terrorists. The Administration remains strongly committed to these objectives. We are convinced of the need for effective legislation against terrorism.

In 1978 there was no reduction in the terrorist threat. Americans, both official and private, continued to be victims. Our facilities and installations continued to be attacked. Recent events in Tehran and Kabul have reminded us of the tragic fact that America and its representatives abroad are symbolically the most visible targets for those who use violence and terror to achieve their aims.

To give you some idea of the seriousness of international terrorism, let me cite the sobering statistics for 1978: 27 kidnappings, 11 barricade/hostage situations, 29 assassinations, 36 armed attacks and 207 bombings of all types. Almost every category represents an increase over 1977. These attacks occurred in every region of the world.

In the last year there was a rising tide of violence in Spain, Italy, Turkey and Central America. Terrorists took the lives not only of our Ambassador in Afghanistan but also of one of the West's leading statesmen, Aldo Moro, of the noted

Egyptian editor and diplomat Yusef El-Sibai, of the editor of one of Turkey's major newspapers and of many other innocent people of all ranks and walks of life.

In the face of this intensifying pattern of violence, we cannot afford to be complacent even in areas where relatively successful efforts have already been made. Despite the notable progress we have made in combatting threats to civil aviation, in 1978 and 1979 aircraft have been hijacked for political reasons to Sweden, Spain, Lebanon, Libya, Costa Rica, Berlin, and Finland. Two civilian passenger planes were shot down in Rhodesia with surface-to-air missiles. Airport security is still inadequate in some countries. We welcome the elements of S.333 which will help us deal with that problem.

A more difficult and complex problem is that of the "patron states." Although some terrorists act alone in pursuit of a particular personal vision, the vast majority belong to well-organized disciplined groups. These groups can only survive because of the domestic and international structures which support them. Many of these groups are still receiving training, weapons, passports and other logistical assistance from external sources. Terrorists who succeed in fleeing from justice find refuge in third countries. These patterns of support are a preoccupying concern for this Administration as it is for this Committee.

There are no easy solutions to the patron state problem. Terrorism and national liberation movements are often inextricably linked. Our efforts have concentrated and will continue to focus on the underlying causes of terrorism; whether in the Middle East, Southern Africa or Central America. We are also giving priority to the strengthening of the international consensus that certain violent acts are inadmissible whatever the cause in which they are used. We must reduce the acceptability of terrorist violence as a tool in international affairs. In a number of specific cases, where we have seen overt and covert support to terrorist groups, we have applied sanctions -- denying all military equipment and items of potential military or terrorist use to countries which have aided and abetted terrorism.

In the last year we have actively worked to enhance our response capability and our preventive measures. I would like to review for the Committee the principal steps we have taken to upgrade our contingency plans and our crisis management capability and to build an international consensus against terrorism.

US GOVERNMENT ORGANIZATION

As the Committee is aware, in September, 1977, new interagency structures were established to upgrade the effectiveness of the US Government's ability to cope with both domestic and international terrorism.

A revitalized Working Group on Terrorism was made directly subordinate to the Special Coordination Committee (SCC) of the National Security Council, the highest level crisis management group in our Government. An Executive Committee of the Working Group, composed of key agencies, was created to function as a central policy review body. In August, 1978, the Working Group established several Committees to focus the energies of its 30 member agencies. Most of the Working Group's activities are now carried out at the Committee level, while the Working Group as a whole meets periodically to coordinate their progress. Individual Committees have active work programs. These include assessing physical security at United States Government installations both at home and abroad, updating contingency plans, and examining the security status of the US border management system. Committees are also evaluating and proposing new international initiatives, setting research priorities, reviewing proposals for research and development, and developing guidelines for a coordinated public affairs posture by Federal agencies during a terrorist incident.

During 1978, the Executive Committee concentrated its attention on interagency policy issues and the Federal Government's crisis management capabilities. It has reviewed Federal anti-terrorism training capabilities and is studying broader policy questions relating to the provision of such training. It has examined the US Government's handling of specific terrorist incidents in the last year, as well as hijackings in

general. It has given considerable attention to security measures for the Pan American Games. Lines of authority and jurisdiction have been clarified and closer working relationships between key persons in the concerned agencies have been established. A Memorandum of Understanding between the State Department and the Federal Aviation Administration dealing with responsibilities in international hijacking incidents has been finalized.

It is obviously not possible for 30 agencies to manage terrorist incidents. In these cases, there are three lead agencies with special responsibilities: the Department of State, the FAA and the Department of Justice. Depending on the location of the terrorist incident, each may be responsible for coordinating the United States Government's response under the over-all direction of the NSC's Special Coordination Committee, which can and does convene on extremely short notice to review contingencies and to provide policy guidance.

During the past seven months, these structures have been utilized in a number of instances: in the seizures of the Chilean Consulate in San Juan and the West German Consulate General in Chicago; in the TWA hijacking to Geneva and the LOT hijacking to West Berlin; and in the kidnapping of Ambassador Dubs. Regrettably, no crisis management structure can guarantee the successful resolution of a terrorist incident, particularly overseas where our influence may be limited and where communications are less than perfect. However, the inter-relationships

that we have created have ensured that, in crises, the various responsible parts of the Federal, State and local governments work effectively together. These capabilities continue to be tested not only in specific incidents but also through regular command and field exercises.

INTERNATIONAL INITIATIVES

On the international level, we are attempting to create a comparable network of cooperation of mutual assistance. Frequent and in-depth consultations among technical and policy experts take place among key US Government Departments and their foreign counterparts in allied and friendly countries. We will shortly be reviewing with both Mexico and Canada some elements of our counter-terrorist policies and plans. Our familiarity with foreign capabilities, methods and procedures and their understanding of ours facilitates our ability to assist Americans caught up in terrorist attacks.

The international community has shown an increasing awareness of the fact that certain acts -- aircraft hijacking and sabotage, the kidnapping of diplomats and the taking of hostages -- are inadmissible in any civilized society. International agreements and conventions are the framework around which this genuine consensus is coalescing. The United States Government is exerting its leadership wherever and whenever possible to build support for existing conventions and for new initiatives.

We have taken a leading role in a contact group of like-minded countries to gain increased adherence to the Tokyo, Hague and Montreal Conventions against air piracy and sabotage. In 1978 and 1979, twenty countries adhered to one or more of the Conventions, bringing the totals to 99, 102 and 98 for Tokyo, Hague and Montreal respectively. Among all UN Conventions, these figures represent uncommonly high adherence rates. Only twenty-three states are not a contracting party of any of the three aviation Conventions and we expect that number to drop substantially in the coming year.

We have also turned our attention to obtaining additional ratifications and accessions to the UN Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents to which only forty states are now parties. Like the Hague and Montreal Conventions, the New York Convention contains a requirement to prosecute or extradite. The murder of Ambassador Dubs is a grim reminder of our diplomats' special vulnerability to acts of violence and makes us even more determined to move forward in this area.

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In tandem with our world-wide efforts in support of the New York Convention, we also are working on a regional basis to broaden support for the Organization of American States (OAS) Anti-Terrorism Convention, which is similar to the New York Convention in its focus.

An important new initiative is moving forward. On February 16 in Geneva the UN's Ad Hoc Committee on the Taking of Hostages concluded its Third Meeting by submitting a draft Convention to the UN General Assembly for consideration and adoption. This draft Convention represents a major achievement for the nations of the world in their fight against terrorism. The recent meeting of the Ad Hoc Committee was characterized by a general willingness to address and seek an acceptable compromise on major political issues, on which earlier Committee meetings had foundered. While there are still two or three unresolved issues, we believe that these can be resolved in the Sixth Committee of the General Assembly. We are hopeful that next Fall's Session will produce a final Convention.

Last year in Bonn, the United States joined with the Governments of Canada, France, Italy, Japan, the United Kingdom and West Germany in declaring our resolve to suspend air service to any country which refuses to extradite or bring for prosecution airplane hijackers. Two meetings have been held at which experts from the seven countries have laid out procedures for implementing the Bonn Declaration. Procedures are now in place which enable the seven to take rapid and effective action in the event of a hijacking.

In addition to these efforts, the Seven Bonn Summit participants have undertaken world-wide diplomatic efforts to ensure broad support for the Declaration. Over thirty countries have made public or private statements of support for the Declaration and others have indicated that while they wish to study the Declaration further, they fully support its purpose. The International Federation of Airlines Pilots Association at its recent conference called on all nations to endorse the Declaration. We welcome this action by IFALPA.

COMMENTS ON S.333

As I have indicated, the Administration appreciates the opportunity to work with you to obtain legislation designed to make more effective our efforts to combat terrorism. A comprehensive approach, such as you have taken in S.333, can provide a strong foundation of legislative authority to support our anti-terrorism policies and actions.

We have found many existing legislation provisions designed to combat terrorism to be difficult to interpret and apply because they lack common definitions, standards and purposes. This piecemeal approach has been a confusing signal of Congressional intent and creates problems of over-all foreign policy coordination. It is our hope that once omnibus anti-terrorism legislation is passed, the Congress will act, as necessary, to bring other legislative provisions into harmony.

We support principal elements of S.333: the listing of states which show a pattern of support for terrorism; the reporting requirements which are a vital means of keeping the Congress and the public informed of significant trends and governmental actions; the efforts to improve international aviation security by drawing attention to the critical question of airport security and by modifying the United States Code to implement the Montreal Convention on airport sabotage; and finally, the proposal to add identification and detection taggants to the explosive materials which terrorists might use.

I am confident that Congress and the Executive share the view that legislation in this important field must, above all, be effective in influencing the policies of nations which might support terrorism. If the authority you provide is to have a positive impact on our ability to respond to a wide range of situations, it must permit the Executive to use all the leverage our nation can bring to bear on a particular situation. Our mutual goal must be to convince those nations which support terrorism to forego such support and join us in our attempt to build an international order which rejects terrorism in all its forms.

Starting from that premise, let me comment on the key sections of S.333. Title I of the Bill which deals with the Reorganization of the Executive Office of the President proposes inter alia in Section 101 the establishment of a Council

to Combat Terrorism and in Section 106 sanctions against states supporting international terrorism. With respect to Section 101, we do not believe that a new institutional mechanism is needed. As I indicated earlier, the revitalized NSC/SCC structures are now working effectively, efficiently and energetically. We see no need to replace them with new structures, with essentially the same mandate.

With regard to Section 106 which gives the President authority to respond to the "patron state" problem, we believe significant modifications are necessary. A nation which we conclude has demonstrated a pattern of support for terrorism, under the definitions provided in Section 5, will be listed as such under Section 105. It is our view that the potential listing of these countries will, in itself, provide a deterrent to their support for terrorist activities. We therefore strongly support this concept. Clearly, any nation identified as having supported terrorism would merit severe condemnation by the world community.

S.333 also provides in Section 106(a) that all enumerated sanctions be applied automatically to countries listed under Section 105. The President would be permitted to waive one or more of these automatic sanctions if he determined that the interests of national security so require. While many of the sanctions included in this Bill is appropriate for dealing with many of the varied situations we confront, we oppose

their automatic application which could weaken our efforts to deal with offending nations. It is our view that the President should be able to apply sanctions appropriate to each particular situation.

In dealing with terrorist groups and with their patrons in recent years, we have had to consider a wide range of factors and possible courses of action. We feel that we can be most effective in combatting terrorism if we are able to make these crucial judgments on a case-by-case basis. In our dealings with a number of states whose past support for terrorist groups is well-known, we have, in fact, a policy of denying sales of defense articles whether for cash or credit. We also do not sell commodities which, in our judgment, would enhance their military potential or their ability to support acts of international terrorism.

In each case we attempt to apply sanctions in such a way as to gain the maximum leverage in attempting to change the policies of those countries. If we determine that a particular sanction will not be effective in influencing a country's policy, we do not use it at all. The waiver provision in S.333, which is intended to provide the President with some flexibility in the administration of sanctions, would not work well in actual operation. Under S.333, if we had to waive a sanction, we would be indicating that we acquiesced in the behavior of the offending country. It would force the Administration to say to the world that anti-terrorist goals have a lower priority than other goals, thus diluting the impact of our efforts.

Finally, not using a sanction that we judge ineffective at a particular point in time permits us to retain an element of leverage. The offending nation recognizes that further punitive steps can be taken if its policies remain unchanged.

In asking that this legislation not tie the hands of the President in the application of sanctions, we are not suggesting that the Executive Branch not be required to justify fully the judgments it makes. We therefore support the requirement that the Administration report to Congress on the use or non-use of sanctions. This will ensure that Congress is informed of decisions made in the course of attempting to influence a particular nation's policies toward terrorism.

In addition to the sanctions issue, we have serious constitutional and practical objections to Section 105(e)(2) which provides that Congress, by concurrent resolution, can override a Presidential decision to remove a country from the list. Since the Bill authorizes the President to determine which countries should properly be listed as pursuing a pattern of support for terrorism based upon his weighing of the evidence against the statutory criteria established in the Bill, the making of these determinations becomes an exercise of his constitutional authority to execute the laws. Only a full legislative act - a statute or joint resolution subject to his approval - can alter the functions conferred on the President by statute or otherwise exercise oversight over his execution of the law.

In practical terms, the President's ability to induce and reward changes in patterns of state support for terrorism would be sharply circumscribed if a decision to remove a state from the list could be vetoed by legislative action - even had the President found evidence of a change of behavior so that such a listing was no longer justified. This provision should be changed to authorize the President to remove states from the list when he determines that they are no longer exhibiting a pattern of support for international terrorist acts but to require him to inform the Congress fully and promptly of any such action and the reasons therefore.

With respect to the specific sanctions listed in S.333, we believe some modifcation should be made in Section 106(a) to allow for the provision of disaster assistance which is essentially humanitarian in nature. We also do not believe it would be feasible to monitor the courses of study of foreign students who might come to the United States under the sponsorship of listed states. The categories of nuclear science and subjects having military applicability are so general as to cover almost any work in mathematics and the physical sciences. We recommend that Section 106(a)(5) be deleted.

With respect to Section 303 - Explosive Taggants - we strongly support this effort to deal with all types of terrorist bombings. For effective law enforcement, we

need strong tagging legislation. The Treasury Department will provide more detailed analysis of this issue.

With respect to Sections 401 and 402 of Title IV, concerning reorganization of the Department of State, the Office for Combatting Terrorism is already in existence, headed by a Director with administrative rank equivalent to that of an Assistant Secretary. Therefore, these sections are not needed. The Administration, however, does see merit in the proposition that the head of the Office for Combatting Terrorism be accorded the rank of Ambassador by the President with the advice and consent of the Senate. To accord Ambassadorial rank would demonstrate the importance we attach to our world-wide counter-terrorism efforts. This is particularly important in light of the President's and Secretary Vance's recent undertakings to do more to combat terrorism.

Finally, with respect to Section 403 concerning priorities for negotiation of international agreements, the United States is already actively engaged in nearly all the areas covered. I have described our efforts to broaden support of the prospective hostage convention and the aviation conventions. We do not think that the establishment of a permanent international working group is needed at this time. We are already working in a variety of areas to enhance existing channels for intelligence exchange, to control the export of weapons of particular use by terrorists and to review methods and procedures to combat international terrorism. The US delegation to

the Spring meeting of the United Nations Ad Hoc Committee on Terrorism is studying many of these issues at this very time.

In conclusion, Mr. Chairman, I should like to thank you for this opportunity to testify before your Committee. Your hearings are an important step in the cooperative effort which began in the last Congress to develop comprehensive effective legislation. We look forward to working closely with you and the Committee's staff to ensure that we have the necessary capabilities and authority to deal with terrorism in all its forms.

I would be happy to answer any questions which you may have.

Chairman RIBICOFF. Mr. Lally?

Mr. LALLY. Thank you, Mr. Chairman.

I appreciate the opportunity to appear before this committee today dealing with S. 333. As this committee knows, Secretary of Transportation Brock Adams and FAA Administrator Langhorne Bond have each testified in the Congress with respect to antiterrorism legislation. The Department of Transportation and the FAA support the objectives of S. 333.

In the field of transportation, there is no question that transportation facilities, especially aviation activities, are highly attractive targets for terrorist acts. They are vulnerable targets to a great extent because of the very nature of their services.

Much has been done throughout the world to protect aviation from acts of sabotage and hijacking, whether they are terrorist motivated or not. However, still more needs to be done to protect aviation from such attacks.

The provisions of S. 333 will contribute toward that goal.

The record of countries around the world in improving their protection for aviation has been commendable. Much in the way of improvements has been achieved. But much remains to be done.

In 1977, there were 30 airline hijackings worldwide. That is double the number of the previous year, 1976, and more than occurred in any year since the peak hijacking years of 1968 through 1972.

In 1978, the record was almost similar. There were 25 airline hijackings around the world. Eight of those airline hijackings in 1978 were U.S. airline hijackings—again, more than in any year since the peak hijacking years of 1968 to 1972.

So the mandate is clear that further action needs to be taken to protect aviation from acts of sabotage and hijacking, whether they be committed by terrorists or nonterrorists. We support the objectives of this legislation in that direction.

Our statement has been submitted for the record in full dealing with this legislation. So in the interest of brevity, I would like to confine my remaining remarks to the provisions of the bill that

most affect the Department of Transportation and the Federal Aviation Administration.

We support title II, section 203, dealing with information on airport security, and section 204, dealing with aviation security assistance to foreign governments.

We have one reservation, however. That is our belief that the time period between notification to appropriate foreign government authorities on ineffective security measures at an airport and a determination by the Secretary of Transportation that the foreign government has failed to upgrade the security measures should be longer than the 60 days provided in S. 333. We would favor extending this period for correcting security deficiencies to 180 days. We think that time frame is more appropriate to accomplish some of the kinds of improvements that would need to be achieved.

We particularly urge the enactment of the provisions of section 305 of title III, aircraft sabotage, which would implement for the United States the Montreal sabotage convention, which was ratified by the United States in 1972. It is important that legislation providing for U.S. implementation be enacted at the earliest possible time.

In addition, section 306 of the bill would provide additional measures for the prosecution of individuals involved in aviation related crimes. We would also urge adoption of this section as it will provide an even greater deterrence for persons who would commit crimes against civil aviation.

With that, Mr. Chairman, I would like to end my remarks of a general nature. I would be happy to respond to any questions that the committee may have. Thank you, sir.

[The prepared statement of Mr. Lally follows:]

STATEMENT OF RICHARD F. LALLY, DIRECTOR, CIVIL AVIATION SECURITY SERVICE, FEDERAL AVIATION ADMINISTRATION, BEFORE THE SENATE GOVERNMENTAL AFFAIRS COMMITTEE, CONCERNING S.333, THE OMNIBUS ANTITERRORISM ACT OF 1979. MARCH 30, 1979.

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to appear before you today on the subject of international terrorism. We in the Department of Transportation share your concern about the alarming increase in terrorist acts throughout the world and the increasing tendency to use terrorism to achieve political objectives. Clearly, there is a need to strengthen worldwide measures not only to condemn terrorism but to work toward its elimination from the political scene. We applaud the initiative of this Committee and your desire to build on the steps already taken by our government and governments elsewhere in the world to free all nations from this threat.

In November 1977, Secretary of Transportation Adams appeared before a special meeting of the Council of the International Civil Aviation Organization (ICAO) in Montreal to point out the increasing severity of the threat of terrorism, to urge universal adoption of and adherence to the conventions on hijacking and aircraft sabotage, and to emphasize to the Council that we must have more stringent international standards for the security of aviation. Terrorist incidents have continued to occur since that time, underscoring far better than words the need for effective action.

For a number of years, transportation, particularly aviation, has been a target for terrorist attack, often in the form of aircraft piracy. In each of the past 2 years, 1977 and 1978, there have been more hijackings worldwide than anytime since the peak years of 1968-72. In 1977, there were 30 hijackings of scheduled airlines of which 5 involved U.S. carriers. In

1978, there were 25 hijackings of scheduled airlines of which 8 involved U.S. carriers. Six of these foreign hijackings, but none of the U.S. hijackings, were acts of terrorism--that is crimes intended to achieve political goals and objectives. It appears that this increase in the number of hijackings is continuing. To this point in 1979, there already have been 5 hijackings--3 directed against foreign airlines, 2 against U.S. air carriers. All of the foreign hijackings can be categorized as acts of terrorism, while the U.S. hijackings were not.

While the increase in hijackings is clearly a source of concern, there exists an effective countermeasure. Of the 42 foreign air carrier hijackings occurring in 1977 and 1978, 30 can be attributed to weaknesses in passenger screening procedures. Of the remaining 12, 4 were not screening related and information on 8 is incomplete at this time. Similarly, two of the three foreign hijackings this year are known to have resulted from defective passenger screening procedures.

It should be particularly noted that 8 of the 9 terrorist hijackings that have occurred from 1977 to the present were facilitated by either a total lack of or seriously defective screening. In those incidents, the hijackers, who were armed, boarded the aircraft through the normal boarding process. Properly operating passenger screening systems should have detected and intercepted those weapons. Universal application of effective passenger screening systems should bring about a significant reduction in the number of aircraft hijackings by terrorists as well as by nonterrorists.

In contrast to the foreign experience, no U.S. hijacking since 1973 has involved real firearms or explosives passing undetected through passenger screening points. FAA regulations governing the security of air transportation currently cover 36 U.S. and 73 foreign airlines operating approximately 15,000 scheduled passenger flights each day to and from 623 U.S. and foreign airports and boarding some 700,000 passengers and more than one million pieces of carry-on baggage daily.

In spite of the complexities of this system and the fact that the person or baggage we are looking for is literally one among millions, our experience, as well as the experience of other nations who have adopted similar aggressive antihijacking programs, demonstrates that passenger screening systems work. In the U.S., during the period 1973 through 1978, over 2 billion persons were screened and over 3 billion pieces of This activity resulted in the detection of more than 17,000 firearms and almost 6,000 related arrests. None of the 25 U.S. airline hijackings that occurred during this period involved real firearms or explosives passing undetected through passenger screening points. Moreover, it is estimated that 75 hijackings or related crimes may have been prevented by U.S. airline and airport security measures.

The commitment of the U.S. Government to effective and universal passenger screening is firm. Further, we recognize and applaud the airlines, the airports, the airline pilots and their organizations for their continuing endeavors in seeking improvements in international civil aviation security and their vigorous efforts to promote a safe and secure flying environment.

Both the International Civil Aviation Organization (ICAO) and the United Nations have addressed themselves to the improvement of aviation security. We welcome their work. In 1974, ICAO incorporated a number of international Standards and Recommended Practices for Security in Annex 17 of the Convention on International Civil Aviation, known as the Chicago Convention. This Annex is being reviewed continuously with a view toward improving its effectiveness. For example, in May of 1978, the ICAO Council submitted to member states for comment a series of changes to Annex 17 and, as a result, Amendment #3 was adopted in December 1978. This amendment, among other things, requires that aircraft especially subject to attack be identified and provided additional security at all stopovers. The U.S. will continue to seek further strengthening of international aviation security standards.

In July 1978, at an Economic Summit Conference held in Bonn, Germany, President Carter and the heads of State of six other participating nations issued a Declaration of their commitment to intensify joint efforts to combat terrorism. The Declaration announced that, if a country refuses extradition or prosecution of those who have hijacked an aircraft or if the country does not return the aircraft, the seven nations would take immediate action to cease all their flights to that country and to halt all incoming flights from that country or its airlines. Follow-on meetings attended by representatives of the seven countries were held in Bonn in August and Ottawa in October 1978. The purpose of these meetings was to develop necessary implementing procedures and to encourage other nations to join in the Declaration. Since the Declaration, there have been five international hijackings that the seven states have monitored within the framework of the Declaration.

Many, if not most, nations and airlines of the world now have active civil aviation security programs and are making significant improvements in the security of their air transportation systems. The U.S. has endeavored to speed these improvements by providing technical assistance to other countries. In this connection, FAA technical assistance teams have visited many countries; hundreds of foreign officials and technicians have attended our aviation security training course or have received indepth briefings on aviation security; and we have made available our training materials to numerous foreign governments and airlines.

We regularly conduct security inspections of U.S. flag carrier and certain foreign carrier facilities outside the U.S. This involves visits to most of the major foreign airports. The purpose of these inspections is to assure that the airlines are in compliance with our Federal Aviation Regulations. During the course of the inspections, our representatives meet with foreign airport security officials and any airport security weaknesses or deficiencies observed are called to their attention. This inspection activity has produced security improvements at many foreign airports and has helped to assure the continuing effectiveness of airline security measures required by Federal Aviation Regulations.

In April of this year, FAA will be hosting here in Washington an international aviation security conference where new procedures, techniques and equipment will be discussed and demonstrated. Representatives from approximately 80 countries and interested aviation agencies including ICAO are expected to attend along with most of the foreign airlines subject to U.S. security requirements.

Turning now to the legislation before this Committee, Mr. Chairman, we strongly endorse the objectives of S.333.

As to the introductory sections, i.e., Declaration of findings, Declaration of purposes, Definitions, etc., the Department would note that there should be a clear understanding that the measures proposed in the bill are intended to deal with terrorism, only as defined. Many acts of criminal violence, including the hijacking of commercial aircraft, may superficially resemble an act of terrorism, but are not. For example, as stated previously, there were 55 air carrier hijackings during 1977 and 1978. Of these 55, only 8 are classified as terrorist acts; the remaining 47 are criminal acts. We believe it is essential that the distinction be recognized. These nonterrorist crimes should be handled by officials assigned responsibility for them under the existing statutes. It should also be made clear that nothing in the bill would inhibit the performance of related responsibilities assigned under these existing statutes, such as the Department's responsibility for aviation hijacking.

Turning now to Title I, I would note that, by Presidential directive, crisis management functions and the coordination of related issues which cross traditional jurisdictional boundaries have been assigned to the National Security Council/Special Coordination Committee (NSC/SCC). The membership of the Executive Committee of the interagency Working Group to Combat Terrorism which works under the auspices of the NSC/SCC is almost exactly the same as the proposed Council to Combat Terrorism.

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Under the general guidance of the SCC, the management of terrorist incidents is based on the lead agency concept: The Department of State has operational responsibility for international incidents and the Department of Justice and the Federal Bureau of Investigation handle domestic incidents coming under Federal jurisdiction. Aircraft hijacking has been recognized as a special case, Congress having mandated that the Federal Aviation Administration is to have primary responsibility in this area. Memoranda of Understanding have been signed which formalize these responsibilities: Federal Aviation Administration/Federal Bureau of Investigation, February 26, 1975; Department of Transportation/Department of Defense, September 7, 1978; and Department of Transportation/Department of State, February 15, 1979.

Because the existing organization structure is now providing effective leadership and coordination of U.S. Government activities in combating terrorism, we do not believe that the proposed Council to Combat Terrorism is necessary.

The reorganization of the Department of Transportation, proposed in Title II, Sections 201 and 202, is similarly unnecessary. We believe that the existing framework in the Department has proven to be a workable and effective one, and see no reason to make changes at the present time.

We support the provisions of Title II, Sections 203, Information on Airport Security, and 204, Aviation Security Assistance to Foreign Government, with one minor exception. Our concern is that the period in Section 203 between notification to appropriate foreign government authorities of

ineffective security measures at an airport and the determination by the Secretary that the foreign government has failed to upgrade its security measures is too short. We recommend that 180 days rather than 60 days be authorized to permit adequate time within which to make needed improvements.

We particularly urge the enactment of the provisions of Section 305 of Title III, Aircraft Sabotage, which would implement the Montreal Sabotage Convention which was ratified by the U.S. in 1972. It is important that legislation providing for U.S. implementation be enacted at the earliest possible time. Section 306 of the bill would provide additional measures for prosecution of individuals involved in aircraft piracy or related criminal activity. We also urge adoption of this section as it will provide even greater deterrence for persons who would commit crimes affecting the security of air transporation.

In closing, Mr. Chairman, I would like to express our view that the best way to achieve lasting and widespread improvements in aviation security is through the multilateral efforts of all concerned nations, working primarily through ICAO, a recognized international, safety oriented organization. Further, the work of ICAO should continue to be supplemented through bilateral efforts of those nations, including the U.S., that have led in the development and implementation of effective aviation security programs.

It must be made clear, nonetheless, that the U.S. is prepared to take unilateral action, including the imposition of sanctions, if necessary to protect U.S. citizens. The provisions of S.333 place the nations of the world on notice of our resolve to counteract terrorist acts, and provide tools necessary for this effort. At the same time, this legislation would provide the mechanism for an active U.S. program of helping other countries to upgrade airport security and sharing with them our expertise and experience. This legislation adopts a firm policy toward countries whose airports do not have effective security, but it also provides for giving to those countries help they may need to make necessary improvements and to achieve an acceptable level of security.

That concludes my statement, Mr. Chairman. I will be pleased to respond to questions you or members of the Committee may have.

Chairman RIBICOFF. Mr. Davis?

Mr. DAVIS. Mr. Chairman, members of the committee, it is a pleasure for me to appear here today to discuss really just one title in this bill, and that is the explosives tagging title.

We are here to urge this committee to pass that title for what we consider to be some very important reasons.

The use of bombs and explosives in crimes is, from our perspective, one of the most vicious crimes that anybody could commit. It costs lives; it maims people; and it causes enormous property destruction.

It also, unfortunately, is and has been one of the most difficult crimes for law enforcement to solve. What we are looking for in this bill is assistance in that effort; assistance, first, to help solve those bombing crimes which do take place; and, second, assistance in helping us prevent bombings from taking place in the first place, and thus avoiding the misery which inevitably ensues when that happens.

Now, how will this program do that? First, we have identification tagging. Under that program, by the introduction of taggants into explosive materials, when the bomb goes off, we will have something we do not have now; and that is a lead.

Chairman RIBICOFF. You know, most people don't understand just how that identification works. What do you really put into the gunpowder? When an explosion takes place, how do you trace it? I think we ought to have that for the record, sir.

Mr. DAVIS. Certainly, Mr. Chairman.

The taggants involve micro-sized particles which go into the explosive which go into bombs made from those explosives. They are indestructible by that bomb. They stay alive. They also are color coded, at least the current version that is available now is color-coded, and will provide a unique tracing element; unique to a particular lot of manufactured explosives.

Now what does that mean when that happens? Well, when a bomb goes off and we get to the scene, our investigators get there, they will now have something specific to look for. They will look for it with magnets and they will look for it with ultraviolet lamps. The taggants are both fluorescent and magnetic and the investigators will pick up a certain number of these taggants.

Will those taggants immediately say that the bomber was John Jones? No; of course the taggants won't do that. But they will solve a series of very important problems.

One: They will tell us what type of explosive was used. Two: They will tell us where it was made. Then we go back to the manufacturer and then from his records, with very minor modifications on those existing records, we can trace through them, through the channels of distribution, down as far as we can get into that particular case. In some cases that may be to a particular last legal owner. In some cases that may be to a particular store.

We now have a lead; a lead, I might say, that we do not have today. After the bombing in La Guardia years ago, in which over 10 people were killed, we do not today even know the type of explosive that was used.

How would we use this information? We get down to either a particular place where the explosive was last found, or even, in the case of powders, into a particular group of dealers.

One, it will give us a lead that we can match with other evidence. Perhaps the bombing was of an employment establishment. Perhaps we can trace by matching the list of those people who were employees who might have a grievance with a list of purchasers of some of these powders or explosives.

Second, we might have evidence which suggests that the bombing which took place in New York, included an explosive which we may now find was stolen from a particular site in Montana. We may not have any clues as to that bombing in New York, but we may have some clues from that theft of explosives in Montana. We now have an important lead. We now have a place to go. Because in bombing crimes, that is frequently the problem—we don't have a place to start.

You don't have evidence like the murder scene weapon which you find when somebody shoots somebody. If you can find that weapon, that will give you a place to start.

Chairman RIBICOFF. Let me ask you this: Why would a person who uses a gun legitimately object to the tagging? This is again a mystery. Why do they object to it? What are they fearful of?

Mr. DAVIS. I think they should be fearful of nothing. But what are some of the contentions and what are some of the claims?

Senator JAVITS. You are talking about the National Rifle Association.

Mr. DAVIS. I think among others. I think particularly, Senator Javits.

Chairman RIBICOFF. Why should they be worried about a taggant in a bomb?

Mr. DAVIS. Mr. Chairman, they shouldn't be worried at all, because the things they might be worried about are the things we are worried about—safety. If there is anything that is going to be put into that explosive or powder that is unsafe, certainly nobody wants to prevent that more than us.

So what have we done to make sure that is the case? First of all, we determined that this is the kind of area where we don't want to rely just on inhouse expertise. We have it. We have good scientists. But we went to the Aerospace Corp., which is a very well known, nonprofit corporation which does an enormous amount of work in research and development in technical programs for the Defense Department and for other agencies.

We went to them so that they could be very heavily involved in the design and research and development of this program. We went to the explosive manufacturers. We went to the powder manufacturers. We said: "Design tests for us. Give us the tests. What do you need so that these materials will be safe?"

That has been done, and it is completed as to the dynamites, the water gels. That has been completed as to black powder. Those safety tests are completed.

I know that there are those who are saying that somehow it is not safe. However, we just don't know what they are referring to. We have worked with the explosive manufacturers. We have looked to them for the guidance. And we believe that safety is

insured. And we would not want a bill, we would not want legislation which would in anyway require or authorize or enable us to require a taggant to be introduced into an explosive material before that safety was assured.

Chairman RIBICOFF. In other words, what you are saying, Mr. Davis, is that for all practical purposes, the taggant would be the best and sometimes the only evidence that is available to trace the perpetrator of a bomb?

Mr. DAVIS. That is correct. That is an identification taggant, because the detection taggant is another opportunity, because it is an opportunity to prevent some bombings which we cannot now prevent.

Chairman RIBICOFF. Anyone who legally uses a gun or gunpowder has no reason to be concerned about a taggant in the powder.

Mr. DAVIS. We firmly believe that. Another argument that was made, for example, on the black powder, is that it would affect somehow the ballistics of the powder.

Well, again, Aerospace went to the manufacturer of that black powder, the principal manufacturer, GOEX. Aerospace said: "What is the ballistic test you want to run? Run the ballistic test."

GOEX ran the ballistic test. They were satisfied that their product would not be affected.

Chairman RIBICOFF. Would you please submit for the purpose of the record at this point the results of the tests that Aerospace has made in this entire field?

Mr. DAVIS. We certainly will. Some have been submitted. We will make sure if there are others, they are also submitted, because we believe these are important.

[The prepared statement of Mr. Davis follows:]

FOR RELEASE ON DELIVERY
March 30, 1979 -- 9:30 a.m. EST

STATEMENT OF THE HONORABLE RICHARD J. DAVIS
ASSISTANT SECRETARY OF THE TREASURY
(ENFORCEMENT & OPERATIONS)
BEFORE THE
COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE
ON
S. 333
"THE OMNIBUS ANTITERRORISM ACT OF 1979"

I very much appreciate the opportunity to appear before this Committee in order to discuss the explosives tagging provisions of S. 333, the "Omnibus Antiterrorism Act of 1979." As you know, Mr. Chairman, in the Ninety-Fifth Congress we testified before other committees of both the House and the Senate concerning the Treasury Department's reasons for supporting the adoption of explosives tagging legislation; and recently we have again testified in the House in support of tagging legislation.

Today, I will present an overview of what the explosives tagging program is intended to accomplish, why Federal legislation is needed, what kind of legislation is most desirable and what our answers are to criticisms of this program raised in other hearings. In addition to my remarks, Mr. G. Robert Dickerson, the Director of the Bureau of Alcohol, Tobacco & Firearms, will submit a detailed statement and supporting materials for the record.

As an attorney and former Federal prosecutor, my primary experience has involved dealing with how to investigate and prosecute crimes after they have been committed. But my responsibilities for the protective

as well as the investigative enforcement activities of the Treasury Department demand a perspective which gives at least equal weight to the ability of government to prevent criminal activities, especially those employing violence.

Consequently, I have followed closely the development, under BATF and Aerospace auspices, of capabilities for introducing into non-military explosives those unique elements -- taggants -- which would permit identification and detection of explosives. Very simply, the explosives tagging system would work as follows. Identification tagging involves the insertion of a number of tiny particles -- the taggants -- in an explosive material which would survive intact after an explosion and be recovered by bomb scene investigators. The identification taggant which is presently ready for commercial use involves several color-coded layers identifiable under a microscope. At the bomb scene, it would first be found in the debris through use of a long-wave ultra-violet light which causes the taggants to fluoresce. Since one side of most taggants will be magnetic, a magnet will be used to extract the taggants from the debris. The taggant itself would reveal the type of explosive involved, its manufacturer, and the date and shift when it was made. From this, the explosive could be traced through the distribution chain from manufacturers, to retailers and, in many instances, to the last, or a group of possible last, legal owners of the explosive.

Detection taggants -- which are microscopic capsules containing an inert material -- would emit a vapor which could be detected by specially developed equipment and animals before the explosive containing them was detonated. The presence of bombs could, thus be detected and lives and property saved.

These techniques, some of which could be implemented nationally in 1979 if we had the authority, offer law enforcement and security authorities an opportunity to use science and technology not only to solve more bombing crimes but also to prevent their occurrence. In this manner, a comprehensive explosive tagging program can significantly enhance the public safety.

The extent to which tagging will help counter bombing crimes will be largely influenced by how quickly and how many forms of explosives are tagged. It is

very important therefore, that as soon as technology allows, the requirement that a particular class of explosives be tagged should go into effect. One class of explosives -- dynamites, water gels and slurries -- is ready for identification tagging now; black powder will be shortly. Tagging for the other types is expected to be ready at different times throughout the next three years. Following is a chart reflecting the status of development for tagging the various categories of explosives. It describes the dates we expect tagging could begin to be implemented if legislation is passed in this session and if sufficient taggants are then available. These estimates are those of BATF technical experts and the Aerospace Corporation, the technical managers of this program.

IDENTIFICATION TAGGING

-- Black Powder, June 1979
-- Smokeless Powder, July 1981
-- Dynamites, water gels & Slurries, June 1979
-- Fuse and Detonating Cord, November 1979
-- Boosters, March 1980
-- Detonators, June 1981 (label method)
October 1981 (double plug method)

DETECTION TAGGING

-- Black Powder, October 1980
-- Smokeless Powder, October 1980
-- Dynamites, water gels & slurries, October 1980
-- Fuse and Detonating Cord, October 1980
-- Boosters, January 1981
-- Detonators, January 1981 (both single plug methods)
June 1981 (label method)
October 1981 (double plug method)
-- Detection Taggant Sensors, April 1981 through
March 1982 (implementation of different devices)

Changes, both positive and negative, from the schedule projected last summer are due to various factors, including scientific developments, the lack of legislation, and delays in securing testing agreements with some manufacturers.

We urge that legislation be passed during this session which provides the Secretary with the necessary authority to require tagging of all types of non-military explosives in order that we can minimize the delay in getting tagged explosives into the marketplace and maximize our ability to apprehend those who use bombs

and to save the lives of their intended victims at the earliest possible time. Elimination of particular classes of explosives from this legislation will, we fear, provide a disincentive for the producers of those explosives to cooperate with the development and testing of tagging. The passage of comprehensive legislation, on the other hand, will provide a stimulus which would accelerate the process by which tagging of all explosives used in crimes could be accomplished.

The enactment of tagging legislation in a piecemeal fashion also will minimize and, likely, defeat the timely impact on bombing crimes which tagging might have. For example, if we were to achieve legislative authority that permits us to institute identification tagging for the dynamites, water gels and slurries (which are ready for national identification tagging) but not for other explosives, we would not be able to respond rapidly to the expected shift from dynamites to other forms of explosives; and that shift will receive impetus because of these exclusions. Instead, we will have to: (1) continue to perfect tagging of those categories of explosives not ready today, (2) submit additional legislation to authorize the tagging requirement for those types, (3) go through additional sets of hearings to cover again the testimony already given on this, and (4) if the additional legislation then passes, wait for the taggant manufacturers and explosive manufacturers to gear up for production and use of the taggants in these other types of explosives. This will be a very lengthy process giving bombers years of immunity from the tagging of what are already commonly used explosives in bombs, such as black and smokeless powders.

On the other hand, if we have a single, comprehensive bill -- with the requirements that all taggants be safe, suitable, non-damaging, and available, and with the discretionary authority to make exemptions or delays when needed -- the only step remaining once taggants for these other types of explosives are ready will be to institute the tagging requirement. This approach will not authorize the inclusion of taggants before it is safe to do so; tagging will happen only after tests, participated in by the manufacturers, have been completed successfully.

Passage of a comprehensive bill is also necessary so that the manufacturers of taggants and explosives will be prepared to invest willingly the resources needed to have production and distribution facilities ready. They will do so only if they know that there is a legal requirement for compliance and that the tagging requirement will be implemented on a certain date. This certainly can only be achieved through a comprehensive tagging bill.

The Department recognizes that some have urged that black and smokeless powders be excluded from this program because they are used lawfully by sportsmen. We cannot endorse such an exclusion. All explosives have both lawful and unlawful uses. Black and smokeless powders are not only used by the law-abiding; they are also used by the bombers. For example, among all bombings in 1978 recorded by ATF -- including unidentifiables and incendiaries -- black and smokeless powders were used in 18.5 percent of the total bombings. FBI figures for this period attribute 22.1 percent to the powders. A chart presenting a statistical analysis of the various explosives used in crime is attached to my testimony. Together, those powders comprise a tiny portion of the commercially available cap-sensitive explosives, yet their frequency of occurrence in bombings is several magnitudes greater than their proportional availability.

Given this situation, a program that excludes these powders will clearly have serious deficiencies. Initially, such an exclusion would encourage the increased use of powders in bombs. We are especially concerned about excluding powders from the detection tagging program. Given the relative frequency of their use in bombings, the use of taggant detectors would be of questionable value if they could not detect black and smokeless powder bombs. This exclusion would also reduce the cost benefits of identification tagging.

We have recently heard charges that the safety testing for identification-tagged dynamites, water gels, and slurries is not sufficient. That is not true. In our charge to Aerospace we have placed, and continue to place, the highest priority on the safety of taggants. Dynamites, water gels, and slurries tagged with the finally selected identification taggants have met every safety test. These tests were established and conducted by the explosives manufacturers themselves. Based on these tests, the

manufacturers were confident enough to market their own tagged explosives. The explosives manufacturers have produced and sold seven million pounds of tagged explosives. These are undisputed facts attesting to the safety of identification taggants in this class of explosives. Further information supporting the safety testing is submitted as an exhibit to Mr. Dickerson's prepared statement. Safety tests are now being pursued on all other classes of explosives with participating manufacturers, and under our approach no tagging would be required until these tests have been passed.

From Treasury's perspective another vital issue for tagging has been whether the crimes solved and the deterrence established are worth the effort and costs of requiring the taggants. In order to assess this as objectively as possible, Management Science Associates was asked to study this question. While acknowledging the difficulty in assessing the impact of any program before it begins, the study concluded, and we believe, that the value and cost effectiveness of identification tagging is clear.

Identification tagging will not, of course, serve as an instantaneous means of finding bombers. We do not expect to solve crimes and obtain convictions on the basis of tagging evidence alone. Identification taggants will instead provide initial leads and supply an additional specific connection between the manufacturer of an explosive, the category of last legal purchasers of a particular lot, and other evidence found at a bomb scene such as package fragments, wires, clockworks. In addition, evidence extrinsic to the bomb scene, such as employees with grievances against a bombed business, can be compared with the list of purchasers of an identified lot of tagged explosives in order to reduce further the list of suspects. The additional speed with which taggants will help investigators make these initial links will provide an increased possibility of focusing on a class of suspects while the criminal among them is still likely to have some incriminating evidence in his possession.

The identification taggant is analogous to the date/shift code already required to be printed on high explosives. We know that date/shift data permits speedier traces and that ATF has analyzed those cases

where date/shift code information has been retrieved from dynamite wrappers that survive explosions or were found before detonation. Their study shows that cases forwarded for prosecution where a date/shift code was found were nearly twice the number of cases without date/shift information. We expect at least a comparable result from the use of indentification taggants.

Furthermore, this analogy should apply equally in terrorist bombings or bombings by professional criminals, where link analysis will be greatly enhanced through the taggants providing a clear means of showing connections and patterns common to several bombings even if perpetrated in several different parts of the country. Focus on the individual or group of extremists connected to multiple bombings will not only increase the likelihood of solution of several bombings through one overall investigation but will also save immense expenditures of manpower on bombings which might otherwise appear as unconnected events.

Detection tagging is, in a way, the part of the tagging program from which the greatest direct benefits to the public safety can be expected. With detection devices placed at high target value locations, we can go beyond solving bombing crimes only after the destruction has happened and begin, through pre-detonation discovery, to prevent bombings from occurring. The MSA study suggests that the cost-benefit of this form of tagging is less certain than that for identification tagging. Its analysis makes clear, however, that if one considers just the high risk, potential targets of catastrophic bombings -- airports, planes, public buildings -- then the benefits are clear. In addition, when one considers what detection tagging can do -- save life and limb -- the essentiality of going forward with this program becomes clearer.

While additional information on costs is contained in Mr. Dickerson's statement, I would like to note that the costs of tagged high explosives have been calculated at two cents per pound of tagged explosives. We do not believe this to be an unreasonable burden on either manufacturers or purchasers of explosives.

We have also heard claims that complex and costly regulatory schemes will be initiated as part of the tagging program. Treasury and ATF have asked for no new recordkeeping legislation. Records are now required under existing laws, including those applicable to black and smokeless powders. The only additional requirement would be to show the taggant's code in existing records. This small additional bit of information could not possibly be a serious burden.

We also do not seek to tag those types of explosives seldom found in any bombings. We have no desire to impose burdens on commercial enterprises or private pursuits that do not have a clear public benefit. For example, we are not seeking to require the tagging of those smokeless powders inserted in commercially manufactured, fixed ammunition. Only powders for sale in bulk quantities should be tagged. We take this position because there is no measurable public benefit to achieve by tagging individual rounds of ammunition.

Furthermore, we will not require the tagging of blasting agents which are very rarely used in crimes. The greatest portion (80 percent) of the materials produced for use in commercial blasting is made up of blasting agents, the most common of which is a mixture of ammonium nitrate and fuel oil known as ANFO. The components of ANFO are not explosives until compounded at the blasting site. Then they nearly always require a booster and detonator in order to be exploded successfully. Both boosters and detonators are going to be tagged under this program since they nearly always occur in criminal use of high explosives. Thus, in the event that blasting agents are used in a particular crime, booster and detonation tagging will provide the tracing mechanism, and we will not have to undertake the massive and costly job of requiring that blasting agents themselves be tagged. Tagging of the boosters and detonators is cheaper, more readily applicable, and will have a much greater impact on bombings than tagging of the blasting agents.

The explosives tagging program is designed to help significantly in defeating the bomber, whether he is a terrorist or any other form of criminal. And because we believe in the overall value of tagging, we think that it would be appropriate, in addition to the specific safety and other protections which

Mr. Dickerson and I describe in our statements, to have an obligation placed on Treasury and the Bureau of Alcohol, Tobacco and Firearms to report to Congress at least annually on the results of the tagging program. Such a report will enable Congress to continue to evaluate this program and, we believe, recognize its worth. We will be happy to work with the Committee in developing this and other proposals designed to assure the proper implementation of this program.

We recognize that many Americans have been touched by acts of terrorism and other bombing crimes. The victims -- or their survivors -- know that bombing is a particularly vicious and indiscriminate crime. It is a clearly deliberate act of violence in which the bomber has to acquire the knowledge of how to make a bomb; he has to fabricate the explosive device; and he has to plant it. This is a calculated, planned and indisputably intentional process with severe consequences: death, injury and the destruction of property. For these reasons we believe that we should do all that we legitimately can to meet this problem.

Mr. Chairman, we have never offered tagging as a panacea to bombing crimes. It will not be. All bombings will not be stopped or prevented. In addition, we know that it will take time for the effectiveness of tagging to have an impact that gives a clear measure of its worth. We are confident, however, that identification tagging will help solve more bombings and that detection tagging will cause the discovery of more bombs before they detonate. Together, these two forms of tagging will meaningfully advance our ability to deal with the bombing problem and deter some criminals from using this deadly instrument. We believe that this is a contribution to the general welfare to which the American public is entitled.

1978

Distribution of Explosives in Crime

	FBI			ATF		
	Number	Percent Known	Percent w/Unknown	Number	Percent Known	Percent w/Unknown
Incendiary	636	39.30	34.60	468	36.10	26.50
Black Powder	196	12.10	10.70	171	13.20	9.70
Smokeless Powder	209	13.00	11.40	157	12.10	8.80
Military	133	8.20	7.20	55	4.20	3.10
Dynamite	173	10.70	9.40	251	19.40	14.20
Other	271	16.70	14.70	194	15.60	11.00
Subtotals	1618	100.00		1296	100.00	
Unknown	219		12.00	471		26.70
Totals	1837		100.00	1767		100.00
Black & Smokeless (Shown as percentage of known)		25.10			25.30	
Black & Smokeless (Percentage including unknowns)			22.10			18.50
Black & Smokeless (Percentage excluding incendiaries & unknowns)		40.8			39.6	

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Senator JAVITS. On this point—and I will wait my turn, Mr. Chairman—isn't it a fact that what the Rifle Association is jumping up and down about is the fact that maybe somehow, somewhere this will introduce Government control over the ammunition and the weapon, it is just doctrinaire?

Mr. DAVIS. I have read that in some publications as being a concern, that what we are trying to do is register ammunition. How this is to be I frankly cannot figure out or fathom. It is not going to happen. It is not our goal. It is not what this program is about.

This is a bombing program. It is a crime-solving program. It is a crime-prevention program.

Chairman RIBICOFF. Mr. Quainton, it is my understanding that the emergency sessions of the NSC Subcommittee on Terrorism are not as smoothly run as they appear to be. For example, I understand these meetings are sometimes directed by individuals who do not meet with the group as regular members. This could lead to some confusion and could hamper effective action.

How can this process run more smoothly? I mean, if it always has a different chairman and you are always changing the composition of the committee, how do you put this thing together?

Mr. QUAINTON. I am not sure of the circumstances to which you refer, Senator. In the last 10 months, all meetings of the executive committee and of the working group for combatting terrorism have been chaired by me.

Chairman RIBICOFF. You have chaired every meeting?

Mr. QUAINTON. Every meeting, without exception. My recollection is I chaired all the meetings.

We have, however, created a series of subcommittees in order to pull together those agencies around certain functional problems about which they have a particular concern, for example the security of particular premises overseas. Domestic agencies have little concern about the protection of our embassies or missions or information centers and so forth. So we have a subcommittee agency that deals with physical security overseas. I do not chair that. I have assigned a person from another office to that.

In the subcommittee structure there are indeed a variety of chairmen; although again, as far as I am aware, each committee has been chaired by a single chairman to insure continuity of action.

When decisions have to be taken in crises—and these have been relatively rare—the National Security Council's Special Coordination Committee deals with the most critical issues. There the Chairman would be the senior National Security Council official available at the time.

Chairman RIBICOFF. Let me ask you, the President now has discretionary authority to impose sanctions. To my knowledge, these sanctions have never been invoked.

Why would the President be more likely to apply discretionary sanctions now than he has been in the past? What assurances can you give the committee that the use of these sanctions will be more seriously considered if they are made discretionary?

Mr. QUAINTON. Mr. Chairman, I don't think it is exact to say that sanctions have never been used.

Chairman RIBICOFF. When have they been used?

Mr. QUAINTON. As Senator Javits is aware, several years ago in response to a communication which he wrote to the Department, we identified a number of states which in the past had provided support of a variety of kinds to groups that use terrorism. These states included Libya, Iraq, and South Yemen.

I can't tell you whether those states would be prospectively listed 6 months after the bill becomes effective. But let's take the past. Knowing what we knew at that time about the activities of these governments, we have had a conscious policy to deny the sale of all military equipment, one of the principal sanctions in your legislation, to these countries. We do not have the opportunity to deny them concessional trade access because as members of OPEC, two of them at least would not be eligible. They are not eligible for economic assistance. So we have been using the principal sanction which is in effect available to us, the sale of military equipment, and we have not sold, to the best of my knowledge, any military equipment to these countries.

Chairman RIBICOFF. Haven't you recently issued a license for the sale of planes to Libya which could be used for military purposes?

Mr. QUAINTON. Yes, sir. A second category about which we have been very concerned are those items which might have potential military use. We are not talking about guns or weapons. We are talking about items such as civilian aircraft, which could have a potential use.

We have been very careful and have turned down requests for transport aircraft comparable to the C-130's which were sold to Libya many years ago. They have never been delivered and have been embargoed as part of our policy.

We did, however, take a decision last November to authorize the sale of two 727's and three 747's, sales which amount to $300 million, against a trade deficit which we have with Libya of $3.35 million.

In coming to the conclusion to sell these passenger aircraft, we took into account, in the first place, their basic civilian use. They are in the civilian inventory, not only of Libyan Airlines, but, of course, a wide variety of airlines around the world. There is a legitimate civilian need for these aircraft.

But we didn't just sell them without any restrictions on their use, and the Government of Libya gave us an undertaking that these aircraft, the five I am now talking about—three of which have not been delivered, the 747's; the 727's were delivered earlier this year—would not be used for military purposes; that only authorized civilian pilots would be trained; and there would be no militarization of this equipment; and that if these assurances were violated, we would cut off the supply of spare parts—not only for these 727's which were sold subject to specific restrictions, but on the earlier 727's which were sold without restrictions.

Chairman RIBICOFF. Are these aircraft being used to support Idi Amin?

Mr. QUAINTON. The U.S. aircraft have been used by the Libyan Government to support Idi Amin in terms of bringing troops and probably ammunition and perhaps other military equipment. This includes C-130's sold a very long time ago and some 727's. There

are nine 727's in the Libyan inventory. The Libyans have also used a certain number of Russian cargo aircraft which they have also had in their inventory for some time.

Senator JAVITS. Mr. Chairman, may we ask the witness, are you going to cut off the supply of spare parts. The New York Times says, on March 8, 1979: "Western diplomats also reported that 1,400 Libyans had been flown into Uganda to help President Amin." Only C-planes could fly Libyans. You can fly them in 727's very pleasantly.

And I wrote you, with Senator Ribicoff, we joined together, on March 16 and asked you specifically whether these aircraft, which the United States had licensed today, were being used to supply Idi Amin.

You haven't replied yet. Do I understand this is your reply; that is, they are being used?

Mr. QUAINTON. We will be replying to your letter which did not reach us until March 27.

Senator JAVITS. Pretty slow mail in Washington, isn't it?

Mr. QUAINTON. I wish we could speed it up. I will try to give you all the answers orally.

Senator JAVITS. We had it delivered by hand, Mr. Ambassador. So something is wrong not with us but with the State Department.

Mr. QUAINTON. That is often said, Senator.

The answer is that we know that some 727's have been used in Uganda. We do not know at this point in time whether the two 727's which were sold last November and which were subject to specific restrictions are being used. I can't tell you that because we don't know.

What actions we are going to take with regard to the Government of Libya, in light of its support and relationship to the situation in Uganda, is under intensive review at this time.

We have called in the Libyan Chargé in Washington several days ago; indeed, shortly after this information came to our attention. We asked our Chargé in Tripoli to raise at the highest possible level this question and to draw to the Libyan Government's attention what is our policy; that if those 727's subject to restrictions were used for military purposes, we would cut off the sale of spare parts. That is where it stands at this moment.

Senator JAVITS. If the Chair would allow me, I will use my time now.

Chairman RIBICOFF. Please go ahead.

Senator JAVITS. I don't wish to intrude at all. But I must say, sir, you were great when you named the countries. It was marvelous. You inspire the country, inspire the world. So your heart is in the right place.

But I must say, having been up here, like Senator Ribicoff, for so many years, when you testified: "The Government of Libya gave us an undertaking," I just laughed. What are you people; children or naive? Are you babies? The Government of Libya gave you an undertaking, when you had marked them yourselves as aiding and abetting terrorism. They killed an assistant of mine. That is where they were supplied. That brings it really home, doesn't it?

Mr. QUAINTON. Yes, sir.

Senator JAVITS. How can we justify that kind of a policy? Is this State Department, fabulously courageous and public spirited—I am very serious; I am not kidding—stamping these countries by name, and all of a sudden you tell us, you sophisticated diplomats, that you accepted, "The Government of Libya gave us an undertaking"; this Government of Libya which not only doesn't believe in undertakings but aids and abets murder. How do you explain it?

Mr. QUAINTON. As I tried to make clear, Senator, we do not and have not and do not intend to sell military equipment or items of significant military use to the Libyans or to the other countries which we identified.

We do not, however, have an economic boycott on the Government of Libya. There are a large number of Members of this House and of the other House who have brought to our attention the importance of the economic relationship which we have. As you are well aware, Senator, this is a factor in decisions which this administration must and does take into account.

Chairman RIBICOFF. May I interrupt? You can turn that down. United Technologies, which makes the aircraft engines, are headquartered in Connecticut. When they asked me to intervene with the Government for the sale of those planes, I said no, that I would not intervene for anyone, including a constituent, if the planes are going to be used by terrorists.

We had that same problem with flatbed trucks. I made it clear to my colleagues in the Senate and House who came from the State that I would not intervene because there was a sale for flatbed trucks that could be used for transporting tanks.

So since when does the State Department have to cave in at the request of any single Senator or two Senators or three Congressmen when it is against a basic policy of the country?

Mr. QUAINTON. Senator, you referred to the question of flatbed trucks, a sale which we denied to the Government of Libya because it was a request by the Libyan Minister of Defense. We judged there was a real possibility that indeed these trucks would be used for military purposes, since they were going to the military.

Chairman RIBICOFF. Yes; but Senator Javits points out that these planes were used to transport troops. This becomes a very serious problem.

Senator JAVITS. They admit it, Mr. Chairman. They say so themselves, that the 727's were used to transport troops.

Mr. QUAINTON. And we certainly recognize it as a serious problem. I don't want for a moment to suggest to the committee that we are not aware of the gravity of the situation involving the use of Libyan aircraft in the Ugandan situation.

It is not a question of terrorism per se, but a question of the broader foreign policy interests of the United States.

If I might say, we are trying, as I think the committee is trying, to change the behavior of countries whose behavior is often egregiously opposed to what we stand for. The question is how can we do this.

In certain limited areas, it seems to me we may be able to make progress, even with the Government of Libya. And I am not apologizing for the Government of Libya. Everything you said, Senator Javits, I entirely agree with.

But the fact is the Libyans have moved to become parties to the major international hijacking conventions. As we understand it, they have not received terrorist hijackers for a number of years. In a recent hijacking which did take place into Libya, we are pressing them to bring these hijackers to prosecution. There is a real possibility they will do so.

The Libyan Government intervened, as you perhaps saw in the press, to save the life of an American taken prisoner by terrorists in the Philippines. The Libyan Ambassador got him out.

So it is a two-edged sword. We want them to do certain things and change their behavior, and we are using the tools at our disposal as best we can to that end.

There are, obviously, alternate choices which we could make. But we are taking account of a wide range of interests—political, counterterrorist, and others—in coming to these conclusions.

What I want to assure you is we are aware of the seriousness of the problem. This is not a soft policy in which anything the Libyans ask for, they get. They don't. But until we come to the point where we have a complete embargo, these decisions are going to be difficult to make and will have to be looked at in the light of the circumstances and the information we have before us at any one time.

Chairman RIBICOFF. Mr. Lally, during last year's hearings, the Secretary of Transportation mentioned that a number of airports had security deficiencies. Does DOT know of any airports which now have deficiencies?

Mr. LALLY. In terms of deficiencies of the nature and seriousness identified by the Secretary of Transportation last year, the answer would be no.

We do know that there are airports where improvements are needed and where work is being done to enhance security. But we are not aware of any right now that would fall into the same category as those mentioned last year.

Chairman RIBICOFF. But are there some that still present security problems?

Mr. LALLY. Yes, sir; problems, and need for improvement.

Chairman RIBICOFF. What airports are they?

Mr. LALLY. I would be reluctant to offhand identify airports.

Chairman RIBICOFF. Do you know them? Do you know which airports they are?

Mr. LALLY. Yes, sir.

Chairman RIBICOFF. Then I think you ought to identify them. I mean, we are talking about security. We are talking about millions of American travelers who travel abroad. I don't know how you are ever going to get these airports cleaned up if the public doesn't know what they are. The only sanction you have today against these countries' insecure airports is letting the world travelers know who they are and where they are. I think you have an obligation to the American travelers and world travelers to tell us what airports they are.

What airports today have security deficiencies?

Mr. LALLY. Senator, I am not trying to be uncooperative. But I would appreciate it very much if we had the opportunity to validate what is in my mind, my recollection, and provide that for the record, in the interest of accuracy.

Chairman RIBICOFF. No. If you want to go make a telephone call now, you go ahead. Senator Javits and Senator Levin can question the other witnesses. But I think it is important. This is what these hearings are all about. This is what the problems are all about.

We are the largest user and we have the largest group of aircraft internationally. More Americans travel than any other peoples. I think every American who travels abroad has a right to know whether the airport he is traveling to is a secure airport. I think you have a duty.

Now if you want to clear this up with your sources downtown, we will give you the opportunity. If it is necessary to recess this hearing for a few minutes, we will do so. I think it is too important, Mr. Lally.

Mr. LALLY. Senator Ribicoff, to the best of my recollection, as I said earlier, there are no airports that I can personally identify that fall in the same category as those mentioned last year by Secretary Adams as having serious security deficiencies. There are, however, as I indicated, some airports where continuing problems exist and where continuing work is necessary to enhance security to the level that we would like to see it and to the level that those nations would like to see it.

Now there are three airports that fall into that category. I can name those three. Those three airports at this time would be Mexico City; Accra, Ghana; and another airport in Mexico that I am uncertain as to its exact identification. Those three are the ones that come immediately to my mind at this time as falling into that category.

Chairman RIBICOFF. If there are any other airports, we would expect you to submit that to the committee forthwith, as soon as you can check them out.

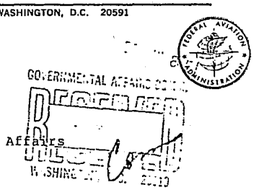
Mr. LALLY. Yes, sir. We will do that.

[The information subsequently supplied follows:]

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591

APR 26 1979



Honorable Abraham A. Ribicoff
Chairman, Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

During my appearance on March 30 before your Committee to testify in behalf of S.333, the Omnibus Antiterrorism Act of 1979, you noted that Secretary Adams, at last year's hearing concerning terrorism, had identified five airports having security deficiencies. You then asked whether we are aware of other airports with security deficiencies. In my response, I stated that there were no airports having deficiencies comparable to those identified last year but that there are several airports where we are working with the concerned government to achieve improvements. At that time, I identified Mexico City, another Mexican airport, and Accra, Ghana. I would like to advise you that the second Mexican airport is Merida, and I would also add to the list the airports at Monterey, Mexico; Dakar, Senegal; and Casablanca, Morocco.

As was indicated in my prepared testimony, Federal Aviation Administration inspectors regularly visit a number of foreign airports. Their purpose is to inspect the security programs of U.S. flag carriers and those foreign carriers flying directly to the U.S. to assure their compliance with Federal Aviation Regulations. While on those visits, they also may observe areas where improvements could be achieved in other aspects of airport security. When such observations are made, the inspectors pass their views and recommendations on to local authorities. Our experience has been that appropriate action is generally taken by such authorities.

In some instances, however, the deficiency or deficiencies observed by the FAA may be of such a nature that we have formally advised the responsible government of our concern and our recommendations. The six airports identified above--Mexico City, Merida, Monterey, Accra, Dakar, and Casablanca--are the

airports now in this category. But it is important to note that these airports should not be categorized as having the serious deficiencies of the five airports listed last year. Casablanca, which was one of the five airports so identified last year, has made considerable progress and improvements but remains of some concern. I should emphasize, too, that we have every reason to believe that appropriate steps are being taken or will be initiated by the responsible aviation authorities of the countries I have noted. Fo. example, followup visits have shown that Dakar already has accomplished nearly all of the actions we had recommended. We believe the approach we have followed to be an effective way of achieving an acceptable level of aviation security, consistent with the approach proposed in Section 203 of S.333.

Enclosed you will find the edited transcript of my testimony before the Committee.

Sincerely,

Richard F. Lally
Director, Civil Aviation Security Service

Chairman RIBICOFF. What was done to upgrade the airports mentioned last year?

Mr. LALLY. At the request of the Secretary of Transportation Brock Adams, special FAA security inspections were conducted at those airports. The deficiencies that were identified fell largely in the areas of passenger screening procedures and access to aircraft on the ground.

Reports were made to those governments; consultations took place with the responsible aeronautical authorities; the Secretary of Transportation furnished officially and formally the results of the inspections, together with recommendations, to his counterparts in those governments; and action was taken to improve the situation, that is to correct the deficiencies.

The airports were reinspected by FAA security inspectors, not just twice, but in some cases three or four times, to assure that the improvements were in fact made and that they continue to exist.

Chairman RIBICOFF. You see, when you mentioned Mexico City, I don't think we should run away from the problems that could be engendered because you mention it. The fact remains that Mexico City probably has an intake of as many American travelers as any airport in the world. I would guess—I don't have the figures—that thousands upon thousands of Americans use that airport month after month.

There is no reason why Mexico City or any other airport in the world should not put in security measures. They make a lot of money off of American tourists. They take in a lot of money for their entire economy. And the least they can do is to assure the people traveling in these airports that they are safe.

There is only one way you are going to do it. When Secretary Adams mentioned those airports last year, you sent a shock wave to each one of those countries. I could tell that by the visits I had from the Ambassadors from those countries. I think the greatest way to get them cleaned up was by mentioning them publicly. My guess is that by mentioning Mexico City and Accra you will finally

get action that you would never have gotten by a polite letter sent from Secretary Adams or Secretary Vance to the heads of their government.

One more question: DOT, as I understand it, conducts security assistance programs to assist foreign governments in improving their security measures. How are you assured that this information is put to the use for which it is intended and not used to educate possible terrorists in ways to beat the system?

Mr. LALLY. We consider each request for technical assistance, Mr. Chairman, on a case-by-case basis. Working in conjunction with the State Department and with the embassy overseas, through whose channels those requests for assistance flow, we try to assure ourselves that the responsible and appropriate government officials are involved in the request and that those officials would be involved in the actual conduct of the assistance and in the followthrough on introducing measures for improvement.

I cannot identify for you any specific, firm safeguards that exist on that score. However, the measures that we recommend generally are not of an exotic or classified nature. They are good, basic, fundamental security measures. And their application universally throughout the world is what we desire to safeguard aviation on an international basis.

So in answer to your specific question, Senator, we feel we have general assurance, but I cannot identify for you specific and firm safeguards.

Chairman RIBICOFF. Senator Javits?

Senator JAVITS. Thank you, Mr. Chairman. I would like to thank Senator Levin for allowing me to precede him.

Gentlemen, I just have a few minutes.

I would like to tell you we support you fully. I would consider the bill very seriously deficient without the taggant section.

Mr. DAVIS. Thank you.

Senator JAVITS. So we will fight for it.

Second, I say to Senator Ribicoff, my chairman, I completely identify myself with him on the airport matter. I want you to know that right now I am the guiding spirit of something called the United States-Mexico Quadrapartite Commission which is United States and Mexican business and government. It is a big deal. It is working on tourism.

I have given a lot of my life's blood to seeing that it works because of the importance of our relations with Mexico. But I thoroughly welcome what the chairman has just said and done. I will talk to the President of Mexico myself. I didn't know that. I don't think millions of Americans know that. And yet they are, and we want to help them engage in a major tourist drive, including a change in our law to help them, which Senator Bentsen and I just introduced a bill to do, because we are jointly working in this deal. Just to show you why the Chair is right in how important this is.

So I would join Senator Ribicoff in urging you to look over your records and so on. If there is anybody else that needs to be tabbed, do it.

I got on a plane in an African airport about 6 months ago at 2 a.m. It is not one of those you name. The gates were pulled open

and 150 people poured out on the plane. If it hadn't been 2 in the morning, I would have turned around and gone home. It was shocking. Absolutely no check of any kind—I was there—of any kind or character; bags, baby carriages, out they went.

Now the only other thing I would like to say to you, Ambassador Quainton, is this: Do you understand that our bill has automatic sanctions, but the President may suspend them, may he not?

Mr. QUAINTON. He may.

Senator JAVITS. Provided that he certifies it is in our national interest to suspend them.

Mr. QUAINTON. That is correct.

Senator JAVITS. With all respect to you, sir, I hope the State Department takes this Libyan experience to heart. You heard the distinguished Senator, our chairman, say that sure, we know that Libya sells us oil. But you have to have a stomach for decency somewhere, some time. And I think that if you had these automatic sanctions, the President would think twice, not once, about suspending them; whereas, when they are not automatic, you get exactly what happened here.

I hope this has tended to convince my chairman, too, who is not all so hot on that on my side, because it firms up your back when the policy of a government is declared to be firm and strong, even if it means difficulty for us, instead of what, believe me, is a joke.

The Government of Libya gave you an understanding that they wouldn't use it for military purposes. You know as well as I do that it didn't mean anything to them. Of course it doesn't. And even the newspapers can get that information.

So, Mr. Chairman, I hope very much that the Chair will feel that we are on the right track, as he is the author of this measure, it is historical, and that we will continue to stand fast on this proposition.

I hope the State Department will very, very definitely review the bidding on the Libya situation and deny them the spare parts for 727's when the evidence is so far that that is what we ought to do.

And also, is there anything in the pipeline on which you are asked to give a license for any other planes for Libya right now?

Mr. QUAINTON. Yes, sir.

Senator JAVITS. What are you going to do about that?

Mr. QUAINTON. Let me tell you what is in the pipeline and solicit your views about what is in the pipeline, if I may, because no decisions have been taken.

We have a request from the Cessna Corp. for 10 crop-duster aircraft with a very tiny range, to be used for agricultural purposes. We have a request for two other small aircraft, Cessna 1310 and 1402C to be used by the Aero Club of Libya, which is a private group of airplane enthusiasts.

We have a request from the Canadian Government for the export of General Electric engines and Hamilton standard propeller 10 Buffalo planes. These are American components for Canadian aircraft. This is under review.

We are not, if I might say, likely to approve that request. But no final decisions have been taken.

And we have a request from an Italian firm, Augusta Bell, for an export license for two AB 12 helicopters to be used for medical rescue purposes. all of these are currently under review.

There is one additional case. The Gulf Stream Corp. has applied for an export license for two Gulf Stream executive jets. None of these decisions have been taken. They range from very small, limited-purpose aircraft—some for agriculture, some for medical purposes—to somewhat larger ones.

We do not have any requests pending at this time for large passenger aircraft; nor do we have any requests pending that I am aware of for large cargo aircraft.

Senator JAVITS. You said in your letter of February 13, 1979, signed by Mr. Bennett: "Future sales plans by private companies are matters of which we are not necessarily aware. However, it is our understanding that Boeing anticipates additional 727 and 747 sales to Libya Airlines."

Mr. QUAINTON. That is correct.

Senator JAVITS. But no such applications have taken place?

Mr. QUAINTON. No such applications. They have indicated to us they anticipate in the next 4 years sales of some $600 million worth of passenger aircraft. But we have no applications beyond the three 747's.

Senator JAVITS. Mr. Ambassador, I know what I think. That is we ought to lower the boom on these people right now, on everything. But I want to confer with the author of the bill and my chairman. I want to take a joint position with him. I think this is a very serious matter, and so we will advise you together on what we believe you should do.

I do not wish in any way to be separated on my view from Senator Ribicoff.

Chairman RIBICOFF. Thank you, Senator.

Senator Levin?

Senator Levin. Thank you, Mr. Chairman.

I commend you and Mr. Javits for the architecture of this bill. I would like to associate myself with it and become a sponsor of it. I notice my name isn't there. I think that is purely a matter of timing. But you can come to me as a sponsor certainly of this bill.

I have two basic questions. One is you want, you say, more flexibility in the imposition of sanctions. How much more flexibility do you want than you have in the bill?

Mr. QUAINTON. The bill requires, as you know, Senator, that five specific sanctions be applied to those cases, those states the President determines, 6 months after enactment of the bill, have demonstrated a pattern of support.

All five of those sanctions in S. 333 would have to be simultaneously applied unless the President made a determination for national security reasons he would not do so.

Our view is and continues to be that the President should decide which of those sanctions are most appropriate and most likely to be effective.

Senator LEVIN. What objection do you have to the President having to inform the Congress before he decides not to impose a sanction?

Mr. QUAINTON. We have no objection to the President informing the Congress of the reasons which he might have for not imposing a sanction. We have no problem with the listing of sanctions. And we think that the list itself indeed of patron states is itself going to be a sanction.

But the President should determine which of the listed sanctions should be used.

Senator LEVIN. What objection do you have to the requirement that the President list those sanctions which he is not going to impose?

Mr. QUAINTON. My understanding is we have no objection. If the President had flexibility he could choose two, three, any combination of sanctions. We have no problem with him informing the Congress of the reasons he did not use a particular sanction against a particular country.

We have no problem with setting out the reasons for our decisions, positive or negative, whatever they might be, with relation to a particular country.

Senator LEVIN. There may be a difference in interpretation on my part. It says here the President can consult with the appropriate committee of the Congress prior to sending up a prohibition.

Is it your understanding he must first impose a sanction before he can suspend it? Is that how you interpret this?

Mr. QUAINTON. Is this if S. 333 were in effect or if the proposal of the administration to have discretionary sanctions was in effect?

Senator LEVIN. If this law were in effect. Is it your understanding that the President must first impose the sanction before he can suspend it?

Mr. QUAINTON. Yes. Well, suspend is not the word I would use. The bill, as I understand it, provides that the President can waive a sanction if he determined for national security it is required.

Senator LEVIN. Maybe I am on a wrong section.

Mr. QUAINTON. There are two issues. If the President imposes sanctions, under what conditions may he remove them? Should that be done by Presidential determination or subject to a concurrent resolution.

But there is also the question if he determined not to impose a listed sanction, what would he have to do? That is a different issue.

Senator LEVIN. Let me ask you the question again. I haven't gotten an answer to it yet. Is it your understanding that the President must impose the sanction—all the sanctions?

Mr. QUAINTON. That is correct. I mean, my understanding is he has to impose the sanction unless he makes a determination in the interest of national security not to impose.

Senator LEVIN. Not to impose the sanction?

Mr. QUAINTON. Not to impose.

Senator LEVIN. So he doesn't have to impose the sanction?

Mr. QUAINTON. He has to make a national security determination, that is correct.

Senator LEVIN. If he doesn't, he doesn't have to impose the sanction?

Mr. QUAINTON. That is correct.

Senator LEVIN. Do you have any objection to the requirement that he inform the Congress as to why it is that he has decided in the interest of national security not to impose a sanction?

Mr. QUAINTON. We have no objection to informing the Congress of the reasons for our decisions, whatever they may be.

Senator LEVIN. You just acknowledged he has the power in this bill not to impose the sanctions.

Mr. QUAINTON. He would have that power, that is correct.

Senator LEVIN. What more flexibility do you want?

Mr. QUAINTON. We believe that a negative decision would be conveying to the patron states concerned a much higher degree of acceptance of their behavior. We would be saying: "Well, other things are more important than terrorism. Here we are; we are going to let you have A, B, C, which are sanctioned by the bill."

I think it is much more constructive to increase incrementally the pressure through sanctions than to have to go through the waiver provided in the draft legislation.

Senator LEVIN. Let me change the line of questioning. Is it your opinion if this bill were in effect now that Saudi Arabia would have to be listed because of its alleged support of the PLO?

Mr. QUAINTON. I don't know the answer to that question, sir. There are a number of countries, in various parts of the world, which provide financial and other kinds of assistance to groups, some of whom are entirely terroristic and some of which are partially. Whether that would constitute a pattern of support I cannot say. I am not prepared to anticipate a determination which cannot be made for at least 6 months after the bill becomes law. That decision would have to be made in the light of circumstances then prevailing and on the information we had about the behavior of Saudi Arabia or any other country. I can't give you an answer.

Senator LEVIN. Can you give us an answer for the record as to whether or not Saudi Arabia's support for the PLO would have been covered if this law had been in effect a year ago?

Mr. QUAINTON. Whether or not the support of Saudi Arabia and other countries of the PLO would result in their being placed on this list?

Senator LEVIN. That is very important to me, because I want to know exactly what activities would be covered and which ones would not. Is the provision of funds to a terrorist organization over a period of years going to result in that country being listed unless the President asks for a suspension?

Mr. QUAINTON. I will have to get the legal authorities to take a hard look at this question. I don't have the answer.

Senator LEVIN. You have not analyzed this language to determine whether or not it would cover such a pattern of activity?

Mr. QUAINTON. We have examined the behavior of states in the past to determine whether a state would fall within the concept of a patron state. As I indicated, we identified in the past a number of states which did not include Saudi Arabia.

Senator LEVIN. The question is slightly different. If there were a pattern of financial support from a state to an organization which openly, avowedly supports international acts of terrorism, would this language in your opinion result in that state having to be

listed and sanctions being taken against that state, unless the President asked for the suspension of those sanctions?

Mr. QUAINTON. I do not have a legal view as to whether only financial support would be sufficient to constitute a pattern of support in terms of the legislation. I would like to ask the legal experts of the Department to look at that question and to give you a considered answer.

Senator LEVIN. I will ask that our staff, Mr. Chairman, analyze the language of this bill as it might apply to that problem.

Chairman RIBICOFF. Without objection.

Mr. QUAINTON. That would involve quite a wide spectrum of countries, as you would undoubtedly be aware, Senator.

Senator LEVIN. Thank you, Mr. Chairman.

Chairman RIBICOFF. Thank you, Senator.

Without objection, a number of Senators would like to have written questions submitted to you gentlemen for response. They will be forwarded to you. I would trust that you would respond to the questions in writing.

Mr. DAVIS. We would be happy to.

[Answers to questions submitted by Senator Levin:]

DEPARTMENT OF STATE
Washington, D.C. 20520

JUN 7 1979

Dear Mr. Chairman:

This is in reply to your letter of May 7 conveying three additional questions from Senator Levin in connection with the testimony of Ambassador Anthony Quainton, Director of the Office for Combatting Terrorism, before your Committee on March 30. Attached are the responses for the record.

Sincerely,

Douglas J. Bennet, Jr.
Assistant Secretary
for Congressional Relations

Enclosures:
As stated

The Honorable
Abraham Ribicoff,
Chairman, Committee on Governmental Affairs,
United States Senate.

Q: On page 3 of your statement you note that the U.S. Government has already applied some sanctions in a number of cases against countries covertly supporting terrorist groups. Could you please identify or provide for the record the names of these countries, what sanctions were imposed, and what effect, if any, these sanctions had on the subsequent behavior of these countries?

A: A number of countries have provided assistance to groups which use terrorist methods. We have been particularly concerned by the activities in recent years of Libya, Iraq and the People's Democratic Republic of Yemen. We carefully review all requests for export of items of potential military use to these countries. Our policy is not to supply them articles of either direct or indirect military application.

With respect to Libya, the U.S. Government:

-- Disapproved the overhaul of the United States or elsewhere of 8 Libyan C-130 aircraft.

-- Disapproved the issuance of Munitions Control licenses for the overhaul of Libya's C-130 abroad.

-- Disapproved the sale of a normal supply of C-130 spare parts and on-site maintenance of the aircraft in Libya.

-- Postponed indefinitely the export of 8 C-130 aircraft purchased by Libya in 1972.

-- Refused various requests for the sale of Munitions List material to Libyan military consignees, including

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heavy helicopters, telecommunications equipment, military tank transporters and combat support vehicles.

-- Denied licenses for third country transfer to Libya of US-origin equipment and technology which would enhance Libya's military capability.

-- Denied required licenses for export of US computers to the Libyan Atomic Energy Research Center.

-- Blocked a proposed sale to Libya of civilian truck tractors suitable for use as tank transporters. (The manufacturer subsequently withdrew the license request, but the sale of 400 trucks of a different type incapable of transporting tanks was later approved.)

-- Selectively rejected Libyan requests for training in the US of civil aviation personnel and refused a request to send five US technical experts to a Libyan industrial research center.

-- And, as of May 23, the State Department has recommended that the Department of Commerce not allow the export of 3 Boeing 747 commercial aircraft ordered by Libyan Arab Airlines.

The Libyans continue to give support to some groups which employ terrorism; but, for over a year and a half, we have seen no evidence of Libyan participation in the planning or execution of any terrorist incident. The

Libyans have acceded to all three international conventions dealing with hijacking and air safety, and during the past twenty months they have twice refused hijacked aircraft permission to land in Libya. While the Libyans certainly have not totally disassociated themselves from terrorists, there appears to have been some movement in the direction we favor, and we want to encourage this process. It is difficult to say precisely what part U.S. sanctions have played in this process, but they may have been a factor in altering Libya's posture with respect to certain forms of terrorism, such as hijacking.

With respect to Iraq, the U.S. sells no military equipment to the Iraqis and carefully scrutinizes any items of potential military use to assure that risks of such use are minimal. The U.S. Government has disapproved applications to sell:

-- radar systems and complimentary equipment

-- communications countermeasures equipment

-- radio monitoring equipment

The Department of State has informally disapproved other items, such as armored ambulances and two-way radios.

The volume of their requests for U.S. equipment purchases is relatively low due, in part, to the absence of diplomatic relations and the minimum level of contact with the U.S. Government. The USSR is Iraq's chief source of military supply.

Iraq has taken a public stand against airline hijacking and has apparently determined to deny its airport facilities to hijacked aircraft or to hijackers seeking asylum. There have been no instances in at least the past two years or more where Iraq has cooperated in allowing a hijacked aircraft to land. Iraq is also an adherent to the three major aviation conventions.

In contrast to its positive stand on hijackings, Iraq continues to provide support to international terrorist groups - especially those associated with the Palestinian liberation movement. While Iraq's stance on hijacking can be considered favorable in light of our policy considerations, there is no strong evidence to suggest that the US-applied sanctions have resulted in a reduction of Iraqi support for the groups which have enjoyed its patronage.

With respect to the People's Democratic Republic of Yemen (PDRY), the U.S. Government has:

-- Never approved sales of any military items.
-- Disapproved all export license requests for the sale of commercial aircraft over the last two years for 1 used Boeing 707, 1 Boeing 737 and 4 demilitarized C-47's.

The volume of South Yemeni requests for U.S. equipment purhcases is very low due, in part, to the absence of diplomatic relations with the U.S. Government.

There is no evidence that U.S. sanctions have moderated the PDRY's provision of various forms of assistance to groups which employ terrorist tactics. It has not adhered to any of the three major aviation conventions.

Q: Could you also provide for the record examples of conflicting or confusing legislative provisions to combat terrorism which you say on page 9 of your statement are in need of review?

A: There are nine separate legislative provisions dealing with international terrorism which are contained in:

- P.L. 95-435, Section 6 (authorizing U.S. participation in the Supplementary Financing Facility of the IMF)
- Export-Import Bank Act of 1945, Section 2(b)(1)(B)
- Foreign Assistance Act of 1961, Section 620A
- Arms Export Control Act of 1976, Section 3(f)(1)
- Foreign Assistance and Related Programs Appropriations Act of 1979, Section 607
- Trade Act of 1974, Section 502(b)(7)
- Export Administration Act of 1969, Section 3(8)
- Federal Aviation Act of 1958, Section 1114
- P.L. 95-118, Section 701 (dealing with U.S. participation in international development banks).

A primary problem with these legislative provisions is, as we testified, that they are difficult to interpret and apply because they lack common definitions, standards and purposes.

For example, only three provisions (P.L. 95-435 re IMF, P.L. 95-118 re development banks, and the Federal Aviation Act) include a definition of international

terrorism, and then only by reference to specific conduct, i.e. hijacking. In one case (P.L. 95-118), it appears that the application of the provision is limited only to circumstances surrounding acts of hijacking; in the other two, hijacking appears to be illustrative conduct. With respect to one of the latter examples (P.L. 95-435), the legislative history states: "(T)he definition of the word terrorism will be that contained in the anti-terrorism legislation now pending before Congress or otherwise defined by law." Assuming the first reference is to S.333, the definition has not been finalized and the legislative history is incomplete; the latter reference only leads one back to the example of hijacking.

Further difficulties with existing legislative provisions concern the lack of common, or at least complementary, standards of application. For example, four provisions (Foreign Assistance Act, Foreign Assistance Appropriations Act, Arms Export Control Act, and the Trade Act) use one standard, while the other five establish separate bases for application. The first four focus on any government or country which "...aids or abets, by granting sanctuary from prosecution to, any individual or group which has committed an act of international

terrorism." P.L. 95-118 talks about governments which "...provide refuge to individuals committing acts of international terrorism...". The Aviation Act may apply when a "...foreign nation permits the use of territory under its jurisdiction as a base of operations or training or sanctuary for, or in any way arms, aids, or abets any terrorist organization...". The Export Administration Act concerns itself with encouraging other countries to "...prevent the use of their territory or resources to aid, encourage, or give sanctuary to those persons involved in directing, supporting or participating in acts of international terrorism." P.L. 95-435 focuses on governments which "...permit entry into the territory of such country to any person who has committed an act of international terrorism...or otherwise supports, encourages, or harbors such person; or fails to take appropriate measures to prevent any such person from committing any such act outside the territory of such country."

The meaning of many of the above phrases and verbs is far from clear. Unfortunately, the legislative histories of many of these provisions is sparse and inconclusive.

Finally, some of the provisions seem at least partially at odds with one another from a policy standpoint. Some provisions, dealing with unilateral U.S. assistance, commercial concessions or facilitation, require automatic application unless national security or economic interests require otherwise (Foreign Assistance Act, Foreign Assistance Appropriations Act, Arms Export Control Act, Trade Act). Two other provisions in the same general category (Export Administration Act, Eximbank Act) are to be applied only after efforts to obtain international cooperation to the same effect have been exhausted or only if such action "would clearly and importantly advance United States policy in such areas as international terrorism." The Foreign Assistance Appropriations Act and the Eximbank Act contain somewhat contradictory provisions dealing with the same Federal agency, the Export Import Bank. Lastly, of the two provisions dealing with U.S. participation in international financial institutions (IFI's), both require automatic application; but one (P.L. 95-435 re IMF) has no provision for waiver, while the other (P.L. 95-118 re other IFI's) contains a basic human needs exception.

Q: If the application of sanctions is made entirely discretionary with the President, won't this significantly weaken the sanction as a deterrent?

A: The threat of sanctions, whether automatic or not, is the significant deterrent. What is important is that foreign governments recognize that the U.S. Government will use its programs and authority when there is egregious behavior related to terrorism. We have already taken important steps in the cases of certain problem countries, as outlined in the response to your first question, to impose sanctions by denying sales of items of either direct or indirect military application.

Chairman RIBICOFF. Thank you very much, gentlemen.

[Whereupon, at 10:40 a.m., the committee was recessed, to reconvene at the call of the Chair.]

OMNIBUS ANTITERRORISM ACT OF 1979

MONDAY, MAY 7, 1979

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met, at 10 a.m., in room 3302, Dirksen Senate Office Building, Hon. Abraham A. Ribicoff (chairman of the committee) presiding.

Present: Senators Ribicoff, Sasser, Pryor, Javits, and Stevens.

Chairman RIBICOFF. The committee will be in order.

Our first witnesses today are Capt. Thomas M. Ashwood and James E. Landry.

I want to welcome you two gentlemen. Your organizations have been in the forefront of efforts to combat terrorism. If this bill ever becomes law and policy in this country and abroad, it is my personal opinion that your contributions will be seen as the most influential force in making this possible. I don't know when I have ever welcomed support from any organizations more than I do yours. It is important. I am always pleased to see you gentlemen.

Mr. Landry or Mr. Ashwood, is there any preference who goes first?

You may proceed.

TESTIMONY OF CAPT. THOMAS M. ASHWOOD, SECRETARY, AIR LINE PILOTS ASSOCIATION, AND JAMES E. LANDRY, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, AIR TRANSPORT ASSOCIATION

Mr. ASHWOOD. Thank you, Senator. If I may, I would like to submit our prepared statement for the record.

Chairman RIBICOFF. Without objection, the entire statement will go into the record.

Mr. ASHWOOD. I thank you, sir.

I will comment on what we consider to be the high points of the proposed legislation. First is the section where we refer to the missiles, the SA-7 and the Red Eye. The provisions of this bill would discourage the illegal use of these missiles and safe harbor and safe haven for their users. There is no question that the use of surface-to-air missiles in civil aviation is the most ominous escalation in this bloody history of terrorism. This is the heart of the bill, as I mentioned.

The biggest defense against such things are the automatic sanctions which are contained in the bill. There is a section which reads—this is referring to the offending countries—that "have demonstrated a pattern of support for acts of international terrorism."

We understand right now there have been only two successful missile attacks against civil aviation. These were actually launched in Rhodesia by terrorists who have their base in Zambia. I point this out as an example of automatic sanctions.

Right now we understand that Zambia is about to receive something like $41 million worth of direct aid from the United States. So I feel that if such an automatic sanction were involved today, it would perhaps temper the Zambia Government's judgment in giving sanction to terrorists.

We dispute the State Department's attitude toward automatic sanctions. They say they require flexibility. I would suggest with respect to the present language of the bill it grants flexibility to the President in sufficient quantity at least to protect the national interest and security of the United States.

We would also point with respect to the Bonn agreement which the President was party to last year. It already calls for the automatic suspension of air service. So we have endorsed the principle of automatic sanctions in another regard.

We would also like to touch on the expansion of the Federal Aviation Administration outlined in section 204. The present system, sir, is working at full stretch. I am referring to the FAA Security Division in the United States. We are somewhat concerned when this bill becomes law, which we hope it will of course, that something will have to give.

They have insufficient personnel, we believe, to accommodate the new requirements of the bill. To the best of our ability, we have tried to assess what their increased requirements would be. We feel it is between 40 and 45 additional personnel, with a cost of somewhere between $2 million and $2.5 million. We are very concerned that the budgetary requirements to meet the full provisions of the bill be granted to this particular division of the FAA, which is the Civil Aviation Security Service. That may be considered in your deliberations.

I understand that the taggants for explosives, of course, are perhaps one of the more controversial items of the bill. We recognize the technology has yet to be perfected, but we are not convinced that it cannot be perfected.

The thing that concerns us most greatly is that the bill itself may be delayed or even destroyed over the taggant question. We ask with respect, sir, that the bill does contain provisions for the requirements of taggants at some point in the future, with a definite time limit on it. I think the research and development can be accomplished in a reasonable period of time, and taggants on explosives should become a reality in the United States, as they are becoming in other parts of the world.

We have had some examples recently, for example the Frankfurt bombing, which was fortunate in that the bomb, destined for an aircraft headed for Israel, went off on the ground.

To the best of our knowledge, it had a barometric fuse attached to it, which means it was intended to blow up an aircraft in flight. With taggants such things can be detected. They can be detected in the mail. I think that is the only way we are going to be able to detect explosives mailed in parcels or that go into the baggage hold.

Regarding section 306, loaded guns in baggage, although it is not specifically a terrorist act, we feel an amendment would be a very important part of the bill. This provides defense for airline personnel. We have already had one baggage handler killed and one wounded because of this.

Chairman RIBICOFF. I have always been curious about that. You go through the screening process when you enter a plane. What happens if some of these things are put in baggage?

Mr. ASHWOOD. That is the problem.

Chairman RIBICOFF. Is your baggage screened as it goes into the cargo area of an airplane?

Mr. ASHWOOD. That depends on what flight you are on, sir. For flights the airlines consider to be high-risk flights, all baggage is inspected before going on board. On most flights it is not, because it is felt that the chance of a kamikaze-suicide-type operation where a passenger will load a bomb on the same flight he intends to take——

Chairman RIBICOFF. That isn't what bothers me. I have often been bothered by someone checking in baggage, buying a ticket, sending the baggage, and then not taking that plane.

Mr. ASHWOOD. We are bothered by the same thing, sir. I know we share this with our colleagues from ATA. There are various systems being experimented with right now on preventing this from happening, so a passenger and his bag do have to go on the same flight.

If the passenger fails to check on board, we are trying to provide a system where the unaccompanied bag is identified when we move the bags. That is a rather difficult problem because of the amount of baggage that is handled daily in the United States and other parts of the world. But we hope to have some system pretty soon where this can be accomplished.

We are rather concerned with the way people who carry guns, for legitimate reasons, like hunters and so forth, who do pack their weapons in hold baggage and pack them loaded. As I said, this is extremely poor gun handling. I think it should also be a criminal offense. I think that will prevent this sort of thing from happening.

We are particularly alarmed. We saw a recent CIA public record that indicates that the United States is in for some terrorist attacks this year, which is why we are also concerned this bill does not get held up, that it go through markup as soon as possible. We feel that is the start of a season for terrorism. We feel the summer is going to be a particularly bad one in this regard.

We are totally unconvinced as yet that the United States has a trained force, such as the G–9 force in West Germany or the Special Air Services in England or the forces the Israelis have for coping with the situation where they have to rescue hostages from an aircraft.

We recognize the President caused a unit to be formed. While the unit, of course, is shrouded to some degree in secrecy, we have seen little evidence it has either the weapons or budget or proper training so we can cope with the situation where a U.S. carrier is taken.

Chairman RIBICOFF. Are the people in this special force consulting with you at all?

Mr. ASHWOOD. No, sir. We wrote to the President last year, we being the Air Line Pilots Association, offering just our expertise in the field of aviation. We don't consider ourselves to be expert in combat, but we do know about aviation.

We received a rather gratuitous reply thanking us, but no thanks.

Chairman RIBICOFF. I will get a letter off requesting the Defense Department to consult with these organizations. What always bothers me is the failure to take advantage of people who have specialized knowledge, the realization that a bureaucracy doesn't have the knowledge and expertise.

You people who have the grave responsibilities not only for your own life and safety but the lives and safety of hundreds of thousands of people should be consulted as to methods and means and experience. I will get a letter off to the proper people to consult with you gentlemen.

[The letter and response follow:]

United States Senate

COMMITTEE ON
GOVERNMENTAL AFFAIRS
WASHINGTON, D.C. 20510

May 7, 1979

The Honorable Harold Brown
Secretary of Defense
Washington, D. C. 20301

Dear Mr. Secretary:

In hearings before the Committee today on S. 333, the Omnibus Antiterrorism Act of 1979, representatives of the air line pilots urged that the Department of Defense's special counter-terrorist forces be better trained in dealing with aviation-related terrorism.

In particular, the Air Line Pilots Association testified that these forces have virtually no detailed training for rescuing hostages from hijacked aircraft.

Since a great many terrorists focus on such targets as aircrafts and airports, it would seem to me vitally necessary that our American counter-terrorist forces be well-versed and thoroughly trained in their response to these incidents. Both the pilots and the air line industry have valuable, unique expertise in this area. I believe the Department of Defense should work closely with these groups in developing highly specialized counter-terrorist units.

As the nation with the largest number of air travellers, we should certainly take the lead by maintaining a first-rate, professional counter-terrorist response force.

Sincerely,

Abe Ribicoff

DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
WASHINGTON, D.C. 20310

OFFICE, CHIEF OF
LEGISLATIVE LIAISON

GOVERNMENTAL AFFAIRS COMM.
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JUN 15 1979
WASHINGTON, D.C. 20510

12 JUN 1979

Honorable Abraham Ribicoff
United States Senate
Washington, D.C. 20510

Dear Senator Ribicoff:

The Department of the Army has been requested to respond to your recent letter to the Secretary of Defense concerning the training of counter-terrorist forces for response to commercial airline terrorist incidents.

As you know, response to terrorist incidents in the domestic arena is the responsibility of local, State, and Federal law enforcement agencies. At the Federal level, the FBI has primary responsibility for incident resolution. Legal considerations (Posse Comitatus Act) constrain response by the military unless the situation is beyond the capability of these law enforcement agencies, and the President directs military action. Training for such contingencies has been conducted in coordination with the FBI and the Federal Aviation Administration.

With the cooperation of the Federal Aviation Administration and several major airlines, DOD counter-terrorist forces have trained on all types of commercial airliners for situations requiring rescue of hostages. These forces have also trained at several major airports to ensure they are thoroughly knowledgeable of airport operations. This training has been conducted discretely to prevent the disclosure of techniques, tactics and personnel that would be used during an actual incident. As a result, the Air Line Pilots Association was most probably unaware that such training had been conducted.

Sincerely,

JOHN L. NALER
Chief, Investigations and
Legislative Division

Mr. ASHWOOD. We appreciate it. Thank you, sir.

My last comment would be on punishment fitting the crime. We are very alarmed about a recent Federal Court decision regarding the possible parole of the Croatian terrorists who hijacked a TWA airliner, killing one police officer and maiming three others. It is possible, by a recent decision 3 weeks ago, they could be released on parole after serving 2½ years of their sentences. We feel that somehow this is inconsistent with the present stance that the United States is taking regarding terrorism.

We just ask the question of the Justice Department: If we cannot live up to our own intentions, how can we expect other countries to do so?

We believe that there are, in fact I have a newspaper clipping in my notes from last Thursday's Washington Post, where a police officer was killed by a bomb delivered to a city hall in Alabama. The assassin's bomb, I think, is becoming the weapon of the late 1970's. I think there is an increase in its use. I think our judicial system should be geared and our punishment should be geared to take account of that fact.

That is about the extent of my remarks, Mr. Chairman.

Chairman RIBICOFF. Thank you.

Mr. Landry?

Mr. LANDRY. Thank you, Mr. Chairman. My name is James Landry, and I am senior vice president and general counsel of the Air Transport Association of America, which represents virtually all of the scheduled airlines of the United States.

We have submitted our detailed statement for the record. I will merely summarize it here this morning.

We are pleased that this committee is focusing on international terrorism in an effort to thwart mindless acts against the users and operators of civil aviation as well as other vicious crimes against citizens of all nations. The antihijacking program here in the United States has been working very well and we and the pilots and the involved Government agencies are determined to keep it that way.

Much has been done both domestically and internationally to counter crimes against the aviation industry, including the U.S. carriers' standard security program as approved by FAA; IATA's airport inspection program; other IATA, ICOA, and U.N. actions which I have described in my written testimony; the July 1978 Bonn antihijacking declaration; and voluntary carrier undertakings to improve security at airports where the local effort appears inadequate.

Let me touch briefly now on various provisions of S. 333. Section 105 would require the President to submit, 6 months after the date of enactment, a list of states which have demonstrated a pattern of support for international terrorism to both the Senate and the House; and section 106 also provides for automatic sanctions, absent what amounts to congressional approval of any waiver, against countries on the list.

On balance we believe some degree of discretion left to the executive branch would be preferable to an open weighing of sanctions versus other national interests. However, we would urge this committee to insure that the executive branch be firmly advised

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that it is the intent of Congress that sanctions be fully exploited as a necessary and desirable tool to combat terrorism and that any waiver from their use is to be an exception, not the rule. Required reports to the Congress on the use of sanctions will, of course, be necessary to attain that goal.

Section 203 would withhold, revoke, or impose conditions on the operating authority of any carrier or foreign air carrier to engage in foreign air transportation at an airport where security deficiencies had not been corrected.

Our carriers strongly urge that they be included in the consultations regarding security at airports being assessed and the opportunity to remedy any deficiencies. I might add, I think probably the pilots should be included in those consultations as well because they are obviously extremely expert on this whole subject area.

In short, we believe that a viable alternative to withholding or revoking the operating authority of any carrier to engage in foreign air transportation at an airport would be to permit the carrier or carriers to supply the manpower and equipment to get the job done.

We have done that on some occasions at some airports. We stand ready to do it further wherever necessary.

The airline industry heartily supports section 204 of the bill which provides for aviation security assistance to foreign governments and aviation security training for foreign nationals as being to the mutual advantage of all countries. We, like the Pilots Association, do question whether $100,000 a year even approaches adequate funding for such an important effort.

We also strongly support section 303 which would require the mandatory use of identification and detection taggants in the manufacture of explosives. In keeping with our primary goal of crime prevention, we urge that an even greater emphasis be given to the research and development effort for detection taggants.

The airline industry wholeheartedly supports full implementation of the Montreal Convention.

The member carriers of ATA support the various penalty provisions of sections 305 and 306. In addition, we would like to add another one. We strongly urge an addition to S. 333 which would make it a Federal crime to place or attempt to have placed a loaded firearm aboard aircraft in, or intended for operation in air transportation or intrastate air transportation, in baggage or other property which is not accessible to passengers in flight.

In the period September 1975 to August 1978, there were 12 instances of accidental discharge of loaded weapons in checked baggage resulting in the death of one airline employee and the wounding of another. Fortunately, none of the other incidents resulted in death or injury.

On the various governmental organization proposals we believe that the Presidential restructuring of the antiterrorism effort is quite similar to the Council to Combat Terrorism described in S. 333 and works efficiently and effectively on the problem. We do not believe it essential to establish any other offices at this time.

Mr. Chairman, Captain Ashwood's prepared statement makes some adverse comments on one section of the recent revision of part 107 of the Federal Aviation Regulations. The section criticized

is the one that would permit, under certain conditions, flexible law enforcement response instead of a stationary law enforcement presence at each of the stations where passengers are screened. Opponents of this revision have presented their arguments. I would like to present the full picture as we see it.

Prior to revising part 107, the merits of flexible law enforcement response were discussed at length among responsible law enforcement officials, FAA security experts, and airline security directors. There was not complete unanimity; in fact, one of our carriers advised that it favored stationary presence.

It was decided to give flexible law enforcement response a try at three airports, using a different system at each airport. Those selected were Dallas/Fort Worth; Lincoln, Nebr.; and Houston. The tests proved to be an unqualified success.

The main objection to stationary presence is that the law-enforcement officer is what is called a sitting duck. The Samuel Byck incident at Baltimore/Washington International Airport a few years ago is an example. A policeman at the screening point was shot and killed by Byck who then boarded an aircraft, killed the copilot, and wounded the pilot. Byck, himself, died in the shoot-out that followed.

At many airports a policeman roving the area rather than one remaining in a fixed position is in a better police posture, is more alert, and can react to an incident rather than be part of the incident. He has a better opportunity to observe passengers, meeters and greeters, and others near the screening station. He is able to make better use of his skills and training, feels that he is really a professional law-enforcement officer, is less likely to look for another job, and has far better morale, which in turn affects his performance.

Recent remarks by passengers at Lincoln, such as: "How come there are so many cops at the airport?" indicate that flexible law enforcement response does not decrease visibility. At many airports flexible response is more cost effective, reduces turnover and results in retention of a higher quality law-enforcement officer.

In short, there are good arguments on each side. I think it noteworthy that the International Association of Chiefs of Police, representing the police departments that supply the manpower for the antihijacking program, is on record as favoring flexible law enforcement response.

In conclusion, Mr. Chairman, we appreciate the opportunity to be here. We believe you are performing an admirable public service in holding these hearings and bringing to the attention of the American public the true facts about terrorism. We pledge a continuation of the utmost cooperation of our member airlines in bringing these heinous crimes to an end.

I would be glad to answer any questions you may have.

Chairman RIBICOFF. Thank you, gentlemen.

S. 333 would require the FAA to periodically review the security of foreign airports and publicize those which fail to correct deficiencies.

At this point in the record I would like to insert a letter from Richard Lally, Director of the Civil Aviation Security Service.

[The letter referred to follows:]

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591

APR 26 1979

Honorable Abraham A. Ribicoff
Chairman, Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

During my appearance on March 30 before your Committee to testify in behalf of S.333, the Omnibus Antiterrorism Act of 1979, you noted that Secretary Adams, at last year's hearing concerning terrorism, had identified five airports having security deficiencies. You then asked whether we are aware of other airports with security deficiencies. In my response, I stated that there were no airports having deficiencies comparable to those identified last year but that there are several airports where we are working with the concerned government to achieve improvements. At that time, I identified Mexico City, another Mexican airport, and Accra, Ghana. I would like to advise you that the second Mexican airport is Merida, and I would also add to the list the airports at Monterey, Mexico; Dakar, Senegal; and Casablanca, Morocco.

As was indicated in my prepared testimony, Federal Aviation Administration inspectors regularly visit a number of foreign airports. Their purpose is to inspect the security programs of U.S. flag carriers and those foreign carriers flying directly to the U.S. to assure their compliance with Federal Aviation Regulations. While on those visits, they also may observe areas where improvements could be achieved in other aspects of airport security. When such observations are made, the inspectors pass their views and recommendations on to local authorities. Our experience has been that appropriate action is generally taken by such authorities.

In some instances, however, the deficiency or deficiencies observed by the FAA may be of such a nature that we have formally advised the responsible government of our concern and our recommendations. The six airports identified above--Mexico City, Merida, Monterey, Accra, Dakar, and Casablanca--are the

airports now in this category. But it is important to note that these airports should not be categorized as having the serious deficiencies of the five airports listed last year. Casablanca, which was one of the five airports so identified last year, has made considerable progress and improvements but remains of some concern. I should emphasize, too, that we have every reason to believe that appropriate steps are being taken or will be initiated by the responsible aviation authorities of the countries I have noted. For example, followup visits have shown that Dakar already has accomplished nearly all of the actions we had recommended. We believe the approach we have followed to be an effective way of achieving an acceptable level of aviation security, consistent with the approach proposed in Section 203 of S.333.

Enclosed you will find the edited transcript of my testimony before the Committee.

Sincerely,

Richard F. Lally

Richard F. Lally
Director, Civil Aviation Security Service

Chairman RIBICOFF. Mr. Lally lists six foreign airports which have security deficiencies at the present: Mexico City; Merida, Mexico; Monterrey, Mexico; Dakar, Senegal; Casablanca, Morocco; and Accra, Ghana. I would note each of these airports is widely used by American citizens and airlines.

Gentlemen, do you feel that informing the American traveling public of such deficiencies through a list will be effective in pushing these foreign governments to improve their security?

Mr. ASHWOOD. Yes, sir. If I may respond, yes, I do believe it will. I think what it will tend to do is cause the countries responsible for those particular airports to be embarrassed enough to perform some security service and upgrade the security of those particular airports. Because of the time lapses involved, it will give them the opportunity to take corrective action.

I just don't see any responsible member of IATA, which most of these countries are, refusing to upgrade their security in the face of such public humiliation, which I guess is the word I would use.

Mr. LANDRY. Yes. I would certainly agree, Mr. Chairman, that that can and will help. We also feel that the kind of assistance and cooperation that the airlines are trying to give to these countries and to these airport authorities is very effective.

We believe, for example, that out of Mexico City now the security of the flights to the United States is good, that they are using X-rays and metallic detectors there, but the security of flights from Mexico City to other points in Mexico is very spotty, frankly.

Up until a couple of years ago, before the airlines really worked even on the flights to and from the United States, the security in Mexico City was not very good. It has improved now internationally, but much remains to be done domestically.

Chairman RIBICOFF. After all, American tourism is very important to every country in the world. The use of the airplane today is for all practical purposes the basic means for international travel.

I am sure that the traveling public, if they felt a foreign airport was unsafe, would easily decide to go to a country with safe airports instead of unsafe airports. The simple sanction of listing an airport with security deficiencies is certainly relatively easy and inexpensive. But I think the international publicity of having the airport listed would probably be the best goal to have the governments or the authorities responsible for the security of the airports make sure the deficiencies were cleaned up.

Mr. ASHWOOD. I agree, sir. There is another factor of the argument against the public list, of course, which is the argument this provides a list of vulnerable airports to terrorists. I think that is a nonsensical argument because they are very well aware of what airports are vulnerable and what airports are not vulnerable.

Chairman RIBICOFF. I imagine every terrorist has a pretty good idea of security arrangements at every airport in the world.

Mr. ASHWOOD. Yes, sir.

Chairman RIBICOFF. They certainly know which ones are more lax than the others and which ones are completely deficient.

In the mid and late 1960's and early 1970's, aircraft hijacking reached epidemic proportions. The danger to the American public was obvious.

The airline industry reacted responsibly by installing costly and drastic security measures. The Air Transport Association predicts it cost more than $200 million annually, but it has paid off. The number of hijackings has dropped off dramatically. Yet we have the case of the explosives industry opposing a security program of explosives tagging, which is slated to cost about $40 million annually. The aircraft security program deterred would-be hijackers.

Similarly, is it not likely that the explosive tagging program will deter would-be terrorist bombers?

Mr. ASHWOOD. If I may respond, absolutely yes, it would deter them because of the detection of the explosives. If we are talking about the economics, if the industry is talking economics, you just mentioned a figure of $40 million a year. I would point out that the cost of a single Boeing 747 is $55 million right now. If they want to talk about an economic benefit, I think that the benefit is very clear there. Just to use the excuse that it is difficult, may be costly to meet this requirement, I don't think answers the basic question: Why are we trying to do it? We are trying to do it so we can stop an aircraft from being blown up in the sky.

I think this is a very laudable purpose and objective. I certainly don't see a relatively small economic penalty as being a persuasive argument against the accomplishment of that objective.

Chairman RIBICOFF. Mr. Landry?

Mr. LANDRY. We share the view of the pilots. Obviously aside from that $55 million aircraft that he spoke of, the mere thought of saving the lives of those aboard certainly makes this a very valuable enforcement tool, one that should hopefully be included in legislation.

Obviously we recognize it is a very controversial part of the bill. However, we have been very much encouraged by recent reports on

the research and development going on in this area. We are particularly pleased to see the advances being made in the detection taggant area, which is the most vital part. The identification taggants are obviously very useful. Detection taggants are the ones that can save those aircrafts and save those lives.

We hope that ultimately the entire aviation community and manufacturers and others who have been opposed to this will come around and support this very useful section of the bill.

Chairman RIBICOFF. Your associations disagree on whether the sanctions against country aiding terrorists, provided for in the bill, should be automatic or discretionary.

The history of the U.S. Government in applying sanctions against such country isn't too promising. Generally we really haven't applied them as a means of combating terrorism.

Are there cases that you know of where in your view the U.S. Government should have applied economic or military sanctions but did not?

Mr. ASHWOOD. Yes. The one I mentioned earlier in Zambia is a case in point. The President of Zambia, at the time of the first destruction of a Rhodesian airliner, publicly stated that he was in support of the terrorists who were using his territory for a sanctuary, for a safe haven, and also for a training base.

That particular year, as I understand it, the United States gave them something like $34 million in direct dollar aid. As I mentioned, in 1979 I understand Congress is contemplating $41 million.

This is a substantial amount for a country the size of Zambia. I think that is a perfect example of what I would term an offending nation receiving aid from the United States while it supports terrorist attacks against civil aviation.

So in short, yes; I agree the sanctions would be a most effective weapon against countries allowing themselves to be used as host nations for terrorists. I think this is the only answer, frankly, sir.

Chairman RIBICOFF. In other words, if it is discretionary, it would really deter a strong antiterrorism policy.

Mr. ASHWOOD. Yes, sir. This is why we are opposed to the discretionary aspects by arguing against it. We have had the discretionary sanctions since 1974, in the original antihijacking bill. We have never seen them used. We feel if the discretion is taken out of this law, then I think countries will think twice before allowing themselves to be used as hosts by terrorist groups.

You can always find a reason why one shouldn't do something. I think that since 1974, on many occasions the State Department has found a multiplicity of reasons why we should not apply the sanctions which were available. We can go on forever like this and go on forever being blown up and shot down out of the sky.

Chairman RIBICOFF. Mr. Landry, do you want to comment further?

Mr. LANDRY. Mr. Chairman, I think it is really a question of degree that separates us from the pilots on this. We, as we have stressed this morning, do feel that a very strong message ought to go to the Department of State and to the executive branch that the waiver of sanctions should be a very rare exception and certainly never approach anything resembling the rule.

What does give us some pause is, through the approach of what we construe as being tantamount to congressional approval of any such waiver, getting into a situation where before the world community perhaps you have an open weighing of the U.S. objective against terrorism against other national interest objectives. We would hope that you don't get into that weighing situation because there may be that rare instance where other efforts, other than the imposition of the full array of sanctions, might be a desired course of action.

Chairman RIBICOFF. Both of you support section 204 of the bill, which provides for Federal technical civil aviation security assistance to foreign governments to improve their airport security.

You also agree that an authorization of $100,000 annually is inadequate for this function.

What in your view would be an adequate authorization?

Mr. ASHWOOD. We did some research on this, sir. Of course, we don't have access to Government figures and Government manuals. But we believe that the Security Division of the FAA—and I am specifically talking about that section of the FAA—would require an additional number of between 40 and 45 people. We estimate that is between $2 million and $2.5 million annually to accommodate this increase.

We would stress, sir, that if any such increase is granted to the FAA for this purpose, it would specifically be earmarked for this purpose and not put in the general FAA budget where it would be lost in the mountainous collection of departments that they already have.

Chairman RIBICOFF. You feel that American technical assistance is important because many of these countries don't have it themselves, or it isn't available to them and they need American help?

Mr. ASHWOOD. There are probably five nations in the world that have probably any degree of technical expertise. The United States would be the major one.

Chairman RIBICOFF. What are the others?

Mr. ASHWOOD. I would say Great Britain, Israel, probably France, and Canada.

Mr. LANDRY. Perhaps West Germany.

Mr. ASHWOOD. Yes, perhaps West Germany.

Chairman RIBICOFF. I am just wondering if it shouldn't be a joint responsibility, all of these countries, or do you think that is too complex?

Mr. ASHWOOD. I am not really in a position to judge, sir, whether they would be cooperative in that regard. There is a great deal of international cooperation on this question, as we have seen with the recent FAA symposium that was held 2 weeks ago here in Washington that 54 nations participated in. But it is really a question of who does have the material, who does have the manpower, and who does have the financing to be able to afford this. I think you will find most of the other countries would tend to look to the United States once again as being the mentor of the world.

Mr. LANDRY. I think, Mr. Chairman, the success of our antihijacking program here in the United States, after the dreadful situation that existed back early in the seventies, the success of this Government-industry cooperative effort is one that is recognized throughout the world as perhaps the best performance that has been made in aviation security anyplace on the face of this Earth.

I think for that reason we are looked to for leadership. I think we can provide it.

Chairman RIBICOFF. Senator Sasser?

Senator SASSER. No questions, Mr. Chairman.

Chairman RIBICOFF. Senator Stevens?

Senator STEVENS. No questions, Mr. Chairman.

Chairman RIBICOFF. Gentlemen, thank you very much for your cooperation.

Mr. ASHWOOD. Thank you.

Mr. LANDRY. Thank you.

[The prepared statements of Mr. Ashwood and Mr. Landry follow:]

STATEMENT OF

CAPTAIN THOMAS M. ASHWOOD, SECRETARY

AIR LINE PILOTS ASSOCIATION

COMMITTEE ON GOVERNMENTAL AFFAIRS

U. S. SENATE

MAY 7, 1979

OMNIBUS ANTITERRORISM ACT OF 1979

Good morning, Mr. Chairman. I am Captain Tom Ashwood, Secretary of the Air Line Pilots Association (ALPA). Our Association represents the professional interests of more than 30,000 pilots who fly for 32 airlines.

I am also chairman of the International Flight Security Committees for both ALPA and the International Federation of Air Line Pilots Associations.

We are grateful for this opportunity to present our views to the Committee. We are especially appreciative, Mr. Chairman, of the sustained effort you and Senator Javits are making to ensure we have strong laws to protect us against international terrorism.

Recent events in several countries remind us that international terrorism continues unabated. The Palestinian Liberation Organization recently warned that it is escalating its terrorist attacks in response to the peace treaty between Egypt and Israel. These developments underscore the need for legislation such as S. 333, your bill that will make Americans and others throughout the world safer and more secure from terrorists.

Just three weeks ago today, 12 innocent Belgians were wounded when Palestinian terrorists threw a bomb and then shot up a restaurant at the Brussels airport. It was only luck that no one was killed during this incident. But it was good security measures, not luck, that kept the terrorists from attaining their

objectives. The bill before you would encourage all foreign countries to adopt adequate security measures such as those in Brussels.

That attack is just one of several examples that supports the prediction the Central Intelligece Agency made last month. The CIA said international terrorism increased in 1978 and is expected to remain at about the same level this year.

Such a level is far too high, Mr. Chairman. If we are going to do anything about reducing the level of international terrorism, we need strong legislation such as S.333.

We pilots are particularly concerned about an ominous trend in terrorism -- the use of small surface-to-air missiles to shoot down unarmed civilian airliners. Twice within the past eight months, Soviet-made SA-7 missiles have been used to shoot down Rhodesian airliners and kill innocent passengers. SA-7s were also involved in two earlier and unsuccessful attempts to shoot down Israeli airliners.

We are not involved in the politics of the Rhodesian situation, but we find it deplorable that these cold-blooded attacks on unarmed civilian airliners were not widely condemned by other nations. This cowardly silence can only serve to encourage more such attacks and lead to the deaths of more innocent civilians.

The Soviet Union and other Warsaw Pact nations have made the SA-7 widely available in the Third World. Our information is that there are at least 130 SA-7s easily available to terrorist groups. In addition, an unknown number of Redeye missiles, the U. S. equivalent of the SA-7, are unaccounted for following the recent revolution in Iran.

It only takes one missile to shoot down an airliner carrying hundreds of innocent travelers. We know of no effective measures that can be taken to protect the aircraft; the only solution is to stamp out the terrorists and deny them their sanctuaries.

One step the United States can take that would be very effective is to apply sanctions against nations that support and supply terrorists. Section 106 of the

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bill you are considering provides a number of sanctions the President is to apply to nations that "have demonstrated a pattern of support for acts of international terrorism."

The bill also gives the President reasonable flexibility in applying these sanctions by allowing him to suspend any of them if he consults with the appropriate committees of Congress and explains in detail why he is doing so.

We are aware that the State Department opposes the automatic sanctions provision of S. 333 because it allegedly would hinder our flexibility. What the Department apparently wants is merely to continue the discretionary sanctions already authorized by law.

That is not good enough, Mr. Chairman. Discretionary sanctions against nations supporting terrorists have been available in U. S. law for almost five years. The U. S. has never applied them. Sad to say, our experience is that the State Department can always find a reason why a sanction should not be applied.

We believe the U. S. is overdue in telling the world it is serious about combating terrorism. Now is the time to demonstrate our resolve by passing a law that includes automatic sanctions against nations supporting terrorism.

In this regard, we note that the U. S. government supported the principle of automatic sanctions when it signed the Bonn Agreement last summer. That agreement says signatories will take "immediate action" to halt commercial air service to and from any country that harbors aircraft hijackers.

There is nothing discretionary about the halt in air service; it is as mandatory as it can be. We urge the State Department to take its cue from President Carter's action in Bonn last summer and stop opposing the automatic sanctions in S. 333. They provide an appropriate mixture of firmness and flexibility in dealing with supporters of terrorism.

We also strongly support the airport security provisions of S. 333. The recent terrorist incident in Brussels demonstrated again -- if further demonstration were needed -- that good security at airports can thwart terrorists.

Our only reservation about the airport and aviation security provisions of S. 333 concerns the additional authorization of funds in Section 204. Currently, the Federal Aviation Administration's Civil Aviation Security Service is carrying out its mission in an excellent manner. The American taxpayers have certainly received full value for every dollar the Service has spent on aviation security.

However, we are concerned that the additional responsibilities this legislation places on the Security Service will overtax it. The result will be either that security at airports in this country will suffer or the FAA will be unable to carry out adequately the foreign airport security provisions of S. 333.

We believe the additional annual authorization of $100,000 contained in Section 204, while helpful, will not give the FAA enough resources to carry out its responsibilities fully. Therefore, we ask that the Committee consider an increase in this authorization.

In regard to airport security, we think the Committee should be aware of a recent change the FAA made in the rules governing passenger screening at U. S. airports. Under this change, which was promulgated over our strong objections, an armed police officer is no longer required to be present while passengers undergo screening at certain airports. Instead, he may patrol other areas of the airport terminal while screening takes place.

We believe this new rule seriously erodes the highly effective airport security system that passengers, pilots and flight attendants have come to rely on over the past six years. The presence of a vigilant, armed police officer at the screening point is a key part of the delicate and complex airport security system.

The entire purpose of the system is to prevent hijackings. If the police officer is not present when the hijacker is detected, he can not react immediately and must try to regain the initiative later. Indeed, the very absence of an officer may be just enough to encourage a would-be hijacker.

For these reasons, we believe the FAA's change in the rule is a step back-

ward in airport security. Consequently, the Committee may wish to consider legislation that would require an armed police officer to be present during passenger screening at U. S. airports.

We wish to reaffirm our support for the section on explosive taggants in this bill, Mr. Chairman. Within just the past six weeks, there have been two instances of attempted airline bombings that could have been prevented by the use of detection taggants. On March 25, four baggage handlers were injured when a suitcase exploded at Kennedy Airport in New York. That suitcase was destined for an aircraft belonging to TWA -- the airline I fly for. On April 3, ten persons were injured when a bomb in a mail sack destined for Israel exploded in the air cargo terminal in Frankfurt, Germany.

These bombings underscore the need for detection taggants. We also support the use of identification taggants as a valuable tool for law enforcement.

We would also like to suggest an amendment to Section 306 of the bill to provide criminal penalties for anyone checking a loaded gun in airline baggage. In recent years, one airline baggage handler was killed and another wounded when loaded guns in passengers' bags have gone off. A prohibition on loaded guns in airline baggage is in a bill introduced by Congresswoman Patricia Schroeder of Colorado and in H.R. 2441, the anti-terrorism bill sponsored by Congressman Glenn Anderson of California. We urge your Committee to include a similar prohibition in your bill.

My final comment, Mr. Chairman, goes somewhat beyond the scope of S. 333. It concerns the preparations the U. S. has taken to counter aircraft hijackings and other terrorist attacks. We are alarmed that this country has no specially trained force comparable to those of Britain, Germany or Israel. Current units in the Defense Department appear to rely too heavily on conventional infantry tactics and training and, as far as we know, have received no detailed training for rescuing hostages from hijacked aircraft.

That concludes my prepared statement, Mr. Chairman. Thank you for this opportunity to testify on this vital and needed legislation. I would be pleased to answer any questions.

STATEMENT OF JAMES E. LANDRY
VICE PRESIDENT AND GENERAL COUNSEL
AIR TRANSPORT ASSOCIATION OF AMERICA
BEFORE THE GOVERNMENTAL AFFAIRS COMMITTEE
OF THE UNITED STATES SENATE

May 7, 1979

My name is James E. Landry and I am Senior Vice President and General Counsel of the Air Transport Association of America, a trade association representing virtually all of the scheduled airlines of the United States.

Airline security officials of the member carriers of ATA have dedicated their efforts over the last several years to achieving the highest possible level of security for U.S. airline operations world-wide. Most importantly, they have not been alone in striving toward that goal; they have worked side-by-side with equally dedicated security experts in our government, with the strong encouragement of the Congress and every Administration, in what has been described as one of the finest examples of government/industry cooperation in many years.

This common task, unfortunately, appears destined to be an unending one in today's society. That is why we are pleased to have this opportunity to comment on the Omnibus Antiterrorism Act of 1979, and we commend the Committee on Governmental Affairs for calling these hearings and focusing on legislative changes "to strengthen Federal programs and policies for combating international and domestic terrorism." The member carriers of ATA have consistently supported several of the measures embodied in provisions of S. 333 and we are grateful to see their proposed

enactment into law. I will comment on those provisions in the latter part of my statement.

Scope of the Problem

While the number of hard core international terrorists is actually quite small (perhaps only a few hundred) their despicable actions, fed by instant global publicity, have seriously affected many elements of government, business and the general public. Ambassadors and military attaches, a Prime Minister and other public officials, as well as private citizens, have been slain, banks robbed, planes, ships and trains hijacked, and public, commercial and residential buildings and automobiles bombed.

Aircraft hijackings by terrorists and other criminals have received massive publicity, yet they constitute a small percentage of the problem. For instance, of the 353 incidents of international terrorism in 1978, two were hijackings: one in the Middle East, and one in Latin America.1/ In the last eight years there has been only one terrorist hijacking of a U.S. aircraft. Fortunately, and due in substantial measure to the achievements of government/industry aviation teams around the world -- with the U.S. among the acknowledged leaders -- aircraft hijackings by international terrorists declined dramatically after the peak year of 1970. The trend was away from the formidable barriers erected by most of the world community against aviation terrorism

1/ Table 6, Page 10, International Terrorism in 1978 (RP79-10149, March 1979), prepared by the National Foreign Assessment Center of the Central Intelligence Agency.

and toward what have become relatively simpler, more easily accomplished forms of terrorism, such as bombing, incendiary attacks and armed assault.

However, we recognize that so long as we face the dreadful experience of one aircraft sabotage, or one successful hijacking, or any other mindless act against the users and operators of civil aviation, we face the challenge of enhancing the unified effort to thwart these vicious crimes against mankind. We understand that to be the focus of this Committee's deliberations.

Current Aviation Programs to Counter Terrorism

In exploring ways to meet the challenge, it is useful to consider what has been done to date. The aviation-related aspects of terrorism represent a matter of serious concern to the airline industry as well as governments. The deterrent programs in place today were developed by the aviation industry in conjunction with governments. All U.S. carriers operate under a standard security program approved by the Federal Aviation Administration. Each year the member carriers of ATA spend more than one hundred million dollars on screening of international flights (both to and from the United States) and domestic flights, and another one hundred million dollars for law enforcement support of such screening. The FAA regulatory role includes inspection of the security operations of all U.S. carriers as well as the foreign carriers flying to, from or within the U.S.

International Airport Inspection Program

This activity is supplemented by the inspection program of the Security Advisory Committee of the International Air

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Transport Association (IATA) whose membership includes over 100 of the world's major international airlines. IATA has developed and promulgated its own airport security standards for international airports. At the invitation of the governments involved, in-depth security surveys under IATA sponsorship have been conducted at airports throughout the world, including sixteen in 1978. Recommendations made are either being implemented or are under active consideration.

IATA Resolution

Another significant act by the world's airlines was the passage of a resolution at IATA's Annual General Meeting held in Madrid in November, 1977, calling upon the International Civil Aviation Organization (ICAO) to amend the Chicago Convention by incorporating the Tokyo (Crimes Aboard Aircraft), Hague (Hijacking) and Montreal (Sabotage) Conventions therein and applying the provisions requiring expulsion of member states failing to ratify the amendments so incorporated. IATA efforts to persuade states to ratify these Conventions through contact with national carriers of those states are continuing.

ICAO Actions

The airline industry strongly supported the proposal by Secretary of Transportation Adams, as presented to a special meeting of the ICAO Council, urging that the highest priority be given to the October 1977 ICAO Assembly resolutions on security, that a variety of security measures formulated by ICAO be upgraded from recommended practices to world-wide standards,

and that the promising program of regional aviation security seminars be increased and expanded. Our industry also wholeheartedly applauds the United Nations Resolution condemning aerial hijackings, and other acts of violence against civil aviation, and calling upon all states to improve security arrangements at airports and ratify or accede to the Tokyo, Hague and Montreal Conventions.

The Bonn Agreement

No review of the concrete steps taken by the world community in this area would be complete without registering the applause of the member carriers of the Air Transport Association for the Bonn Anti-Hijacking Declaration announced at the July, 1978 economic summit meeting of seven of the major aviation powers of the world. This declaration that the seven nations would cease commercial air service to and from any country that harbors airline hijackers is a positive step in the right direction. We have been briefed on the two meetings that have been held to lay out the procedures for implementing the Bonn Declaration. We are pleased that thirty nations have made public or private statements of support for the Declaration.

Additional assistance to obtain the support of the remainder of the world was received from the European Parliament which, on March 16, 1979 adopted a resolution in which the Member States agree to adhere to the Bonn Declaration and also undertake to persuade the governments of other countries to do the same.

Carrier Screening

As can be seen, much has been done by the carriers, l:

the U.S. Government, by IATA, by ICAO, and by the UN to insure recognition of the universal need for quality deterrent programs. In addition, there is increased carrier recognition that they must provide security for their flights, whether or not governments participate. Fortunately, a willingness of foreign authorities to grapple with the security problem is the general experience. However, in situations where the performance of airport authorities has appeared inadequate, our carriers as well as those of other flags have taken it upon themselves to provide the necessary personnel and equipment to insure safe and speedy transportation for our passengers and cargo. At times, these are individual carrier undertakings; at other times, joint efforts. Should an ultimate confrontation ever arise in which a host government or its airport authorities refuse to allow carrier screening, our carriers would consider not boarding passengers at those airports until adequate screening is in force.

Comments on S. 333

Section 105 would require the President to submit, six months after the date of enactment, a list of states which have demonstrated a pattern of support for international terrorism to the President pro tempore of the Senate and the Speaker of the House of Representatives, and set forth his reason for listing any such states.

We believe in the principle that up-front prevention programs are the most effective means of dealing with, and neutralizing, problems in crime. Airline security directors have been in the

forefront in espousing crime prevention and crime resistance. In fact, the 1979 seminar of the International Association of Airline Security Officers will have the theme "The Security Buck Stops Here," meaning that the security officers recognize the limited resources of law enforcement and are concentrating on prevention of crime rather than on investigation, apprehension, prosecution and incarceration. We sincerely believe that good security is what stops hijacking and terrorism. To that end, technical assistance from the United States aviation community should be the first avenue pursued.

Also, prior to establishing a List of States Supporting International Terrorism we suggest that consideration be given to the question of whetner such a unilateral action might prompt other nations to take retaliatory steps, resulting in a pattern of confrontation instead of cooperation. We would prefer that the President, prior to preparing an initial list, issue a "from this day forward" announcement of intention to prepare the list in the event that international, governmental or airline efforts prove inadequate.

Section 106 would impose automatic sanctions against a country that is on the List of States Supporting International Terrorism We defer to the Department of State on this question since it is a matter so inextricably involved with international relations policies. It would seem to us that selective use of sanctions might give the Department of State more leverage. Therefor, we believe that existing law, which authorizes the President to impose sanctions on a discretionary basis is preferable to a public weighing of sanctions versus other national interests. However,

we would urge this Committee to insure that the Executive Branch be made aware that the intent of Congress is that sanctions be fully exploited as a necessary and desirable tool to combat terrorism.

Section 1115 of S. 333 is the provision that impacts most directly on airline operations and therefore is of particular interest to our industry: Section 1115(a) would require the Secretary of Transportation to assess periodically the effectiveness of security measures at foreign airports. These assessments would be made in consultation with appropriate aeronautic authorities of the concerned foreign government. We believe that provision should also be made for consultation with the U.S. flag carriers serving that airport since the member carriers of ATA would be willing to provide additional security, if necessary, to remedy deficiencies in the security measures at the airport.

Our carriers have taken it upon themselves to provide personnel and equipment to enhance security at some foreign airports and would be willing to extend this practice to other locations where it proves necessary. In short, we believe that a viable alternative to withholding or revoking the operating authority of any carrier to engage in foreign air transportation at an airport would be to permit the carrier or carriers to supply the manpower and equipment to get the job done.

The proposed Section 1115(d)(1) sets a sixty-day time limit for remedial steps to be taken by a foreign government prior to publishing in the Federal Register, and posting notices at U.S. airports, the names of the foreign airports where security measures

are found to be below ICAO standards. We believe that in some instances the sixty-day period would be adequate, but there could be occasions when additional time would be required. We believe that this section should be amended to cover such situations, especially since interim measures by carriers may help to bridge any time gap.

Section 1115(d)(1)(A) provides for publishing in the Federal Register a list of airports at which the security measures fall below the expected level of effectiveness. Section 1115(d)(1)(B) provides that after consultation with the appropriate aeronautical authorities of the government where such an airport is located, the Secretary of Transportation may, with the approval of the Secretary of State, withhold, revoke, or impose conditions on the operating authority of any carrier or foreign air carrier to engage in foreign air transportation using that airport. We urge that the words "and each carrier serving such airport" be added after "aeronautical authorities of such government" in Section 1115(d)(1)(B).

The airline industry heartily supports Section 204(a)(1) which authorizes aviation security assistance to foreign governments. Expert, impartial surveys of international airports and well conceived training programs in aviation security for foreign nationals are to the mutual advantage of all countries. However, we do question whether $100,000 per year is adequate funding for such an important effort.

Section 303 would require mandatory use of identification and detection taggants in the manufacture of explosives. We

strongly support the use of taggants in the manufacture of explosives. I should add that we in the airline industry urge that an even greater emphasis and priority be given to the research and development effort for detection taggants, in keeping with our primary goal of crime prevention.

The airline industry wholeheartedly supports Section 304 designed to insure the full implementation of the Montreal (Sabotage) Convention. I had the privilege of serving as an advisor to the U.S. delegation in the development of the Montreal Convention and am particularly conscious of the wisdom and dedication which went into its formulation.

Sections 305 and 306 set forth the penalties, including civil penalties, for aircraft sabotage, damage or interference with the operation of an aircraft, acts of violence against crew members or passengers, aircraft piracy, conveying threats and imparting false information concerning attempts to commit crimes such as sabotage, air piracy and damage to aircraft. The airline industry has long supported the Departments of Justice and Transportation in efforts to obtain such penalty provisions and we therefore endorse these provisions as well.

Mr. Chairman, the airline industry strongly urges an addition to S. 333 which would make it a Federal crime to place, attempt to place, or attempt to have placed a loaded firearm aboard aircraft in, or intended for operation in air transportation or intrastate air transportation, in baggage or other property which is not accessible to passengers in flight.

In November, 1976 an employee of Frontier Airlines was killed when a firearm discharged accidentally while checked baggage was in the process of being transported to an aircraft. In August of 1978 an employee of Ozark Airlines was wounded under similar circumstances. In the three year period from September 1975 to August 1978, there were ten other instances of accidental discharges of loaded weapons transported in checked baggage. Fortunately, none of these other incidents resulted in death or injury.

Governmental Organization Proposals

Next, there is the important question of governmental organization. It is our understanding that the current government structure to counter terrorism, as revamped by the President in 1977, consists of an Executive Committee from key departments which reports to a Special Coordinating Committee of the National Security Council. A Working Group composed of representatives of more than 20 departments and agencies functions under the Executive Committee. We believe that this Presidential restructuring of the antiterrorism effort is quite similar to the Council to Combat Terrorism which is described in Sections 101, 102 and 103 of S.333 and works efficiently and effectively on the problem.

While we thus endorse an interdepartmental structure under the leadership of the Assistant to the President for National Security Affairs, we seriously question the need for establishing new offices such as those provided for in Sections 201 and 301 of this bill. Experience demonstrates that the problems

faced in aviation security lie not with our own government, but elsewhere. Moreover, a proliferation of concerned government organizations often leads to friction rather than teamwork, to say nothing of unnecessarily added expense.

Additional Suggestions

Member carriers of our association have also asked that we relay to the committee three suggestions to enhance the efforts to combat terrorism:

(1) Continue the recent improvement in the Federal Government's collection, evaluation and dissemination of intelligence information.

(2) Seek the cooperation of the news media in order to avoid the reporting of terrorist actions in such a manner as to aid or abet terrorists during an ongoing incident or to encourage future acts of terrorism.

(3) Urge that Interpol, with its membership of more than 100 nations, give high priority to the investigation, apprehension and prosecution of criminal terrorists as well as the improvement of security at the world's airports.

In conclusion, Mr. Chairman, we appreciate the opportunity to be here. We believe that you are performing an admirable public service in holding these hearings and bringing to the attention of the American public the true facts about terrorism. We pledge a continuation of the utmost cooperation of our member airlines in bringing these heinous crimes to an end.

We will be pleased to respond to any questions the Committee may have.

* * * * * * * *

Chairman RIBICOFF. The next group will be a panel discussing explosive taggants.

There are five on the panel. We would hope that you gentlemen would confine yourselves to 10 minutes. Your entire statement will go in the record.

TESTIMONY OF NEAL KNOX, EXECUTIVE DIRECTOR, INSTITUTE FOR LEGISLATIVE ACTION, NATIONAL RIFLE ASSOCIATION; DAVID M. GLEASON, PRESIDENT, INSTITUTE OF MAKERS OF EXPLOSIVES; CHARLES F. TURNER, TECHNICAL ADVISER FOR SPORTING ARMS & AMMUNITIONS MANUFACTURERS INSTITUTE; ROBERT MOLER, THE AEROSPACE CORP.; AND GLENN MURPHY, GENERAL COUNSEL, INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE

Mr. KNOX. Thank you, Mr. Chairman. I am Neal Knox, executive director of the National Rifle Association Institute for Legislative Action. We greatly appreciate this opportunity to present our concerns on explosives tagging. My comments will be limited to identification taggants. Detection taggants are presently at best a laboratory curiosity. There is no way to comment on something that has never been seen or tested.

I noted that the previous witnesses from the airline industry talked about the value of detection taggants which does not exist.

I would like to submit my statement for the record.

This statement does include a response to the statement prepared by BATF for this committee which purports to refute our objections to the tagging of black and smokeless powder.[1]

I would call your attention to one error of substance in my prepared statement. On page 16, under the section on "Response" the testimony should read: "We made the statement before any tests had been conducted." It presently says "the tests," which could be a misconception that the tests had indeed been conducted.

Chairman RIBICOFF. Mr. Knox, would you please correct the copy that goes to the stenographer?

Mr. KNOX. Very well.

The only tests that we are aware of are tests of black powder, and very limited tests: consistently firing some 20 rounds of tagged powder in comparison with firing some 20 rounds of untagged powder under very limited circumstances.

Those are not adequate. I can testify to that fact as an expert witness and as former editor of Handloader and Rifle magazines. Before a categorical statement could be made that tagged black powder did not offer more hazard, an immense number of tests would have to be conducted, and they have not been.

The tests that have been conducted involve only one area, involving only one of the four grades of black powder. But far more tests would be necessary with smokeless propellants since there are more than 50 of them that are available to handloaders and since they vary according to size, shape, composition, and they produce far higher levels of pressure in normal use.

One of the basic tests would involve separation of the powder from the taggant during shipping, handling, and actual use. As each member of the committee is aware, if sand and gravel are

[1] See appendix p. 411.

mixed, then shaken, the gravel would separate from the sand due to the difference in size. In all probability, precisely the same thing would occur with tagged powder, unless the tag matched the powder in size, density, and shape. That could result in extreme hazards to the user.

I have given the chairman a blowup of a photograph showing the immense variation in size and shape of commonly used smokeless powder. At the top we have identification taggants. You can easily see the great difference.

We are told that these taggants would not be used in explosives, but we have not yet seen what taggants would be used. We have been told that they will be matched to the powders, but we have seen no indication that they can be, nor that they have been.

The determination of segregation would be a simple test, but it is a critical test. No such tests have been conducted. It is like the cost of the taggants. We don't yet know what the taggants will cost. The cost figures that we have seen keep being changed. They are very important to consumers.

I am not going to respond in detail to BATF's comments concerning our earlier statements, other than to note our statements were made some 9 months ago and they have obviously been overtaken by subsequent events.

I must point out, however, that BATF has been less than honest with the committee when it makes such claims that there would be no increase in cost to consumers due to recordkeeping, for their comments may be true of black powder but cannot be true of smokeless powder, for which records are not kept in the same way as black powder.

As for BATF's statement to this committee that they "perform every known test to determine whether there is any hazard," I submit that they have not done so, nor have they indicated any intention to do so, not prior to the passage of this legislation which they are requesting.

As just one example, I have seen no evidence that they intend to perform any environmental impact statement on taggants in any kind of explosive on the grounds that taggants are inert materials. I submit that while they may be inert at room temperature, they are not necessarily inert when they burn at some 5,000 Kelvin degrees during firing.

My question is, what harmful vapors are produced by the tag during firing, and would they be a hazard to shooters on indoor ranges? Would they be a hazard to explosive users in poorly ventilated coal mines?

We don't know, and there has been no indication that BATF is intending to find out.

The NRA initially became concerned about the program for two primary reasons: Cost to our members and potential harm to our members and their equipment. We remain concerned about precisely those same matters.

One of the flaws in this program is that no credit has been given to the bombers for ingenuity. Most bombers, where the criminals are bona fide terrorists, are reasonably knowledgeable about explosives. Those that are not have access to a wealth of information on the subject, including information in any library and any publication designed for potential terrorists, some of which I have included with my statement as Appendix 4.

These publications on the simple kitchen manufacture of bombs, timers, and initiators from household substances is provided for your information. I ask that it not be printed in the hearing record.

BATF says the program is designed to defeat bombers. Given the many opportunities for avoiding taggants, criminals are much more likely to circumvent the program, despite the spending of millions of taxpayers' dollars and the spending of additional millions of consumers' dollars.

As you have seen, tags can be removed from dynamite using simple store-bought equipment. Congressional staff personnel, having no familiarity with explosives, assisted in the removal. There is no reason why a criminal could not do the same thing. It is a certainty that terrorists would do the same thing in the unlikely event that they had purchased an explosive through a legal channel, and it could be traced to them.

Although BATF submitted testimony which spoke of tagging all explosives, they have repeatedly said and acknowledged before other committees that this legislation would cover only 20 percent of commercially manufactured explosives. The remaining 80 percent, primarily blasting agents and all explosives produced for military use, would not be tagged.

BATF has said that ammonium nitrate fertilizer and fuel oil cannot be used without initiating it with an explosive device which would be tagged by their theory. The Institute of Manufacturers of Explosives has conducted such tests and will tell you more about those tests. They do substantiate what I have been telling various congressional committees, well, since 1970 in the House.

At that time I talked about the hazards of ammonium nitrate fertilizer mixed with anything that is classed an explosive. I have never said smokeless or black powder cannot be made into a bomb, but I have said it is impossible to attach a tag or otherwise control all of the explosive materials because gasoline is an explosive, is used as an incendiary, and certainly cannot be tagged. Neither can propane nor butane.

Mr. Chairman, BATF contends that if propellants are not tagged, bombers will switch over to them. I would suggest that rather than switching to low-order explosives, such as black or smokeless powder, they would switch to the homemade devices which are easily made.

Further, they would increase their present use of stolen materials.

We are extremely concerned over the costs to consumers; and as the manufacturers, I am sure, are advising you, they sharply dispute BATF's cost estimates. We are in no position to make an independent judgment as to the cost. We simply don't know. But we know it will be high.

If the program were worthwhile and proven not to be hazardous to our members, we would not object. But under the circumstances, we cannot support the imposition of higher costs on our members, accompanied by risks to their safety, for a program that seems more designed to expand BATF authority, manpower, and budget than to fight crime or terrorists.

Thank you, sir.

Chairman RIBICOFF. Mr. Gleason?

Mr. GLEASON. Thank you, Mr. Chairman. In the interest of brevity, as you requested, I will not read my entire statement.

Chairman RIBICOFF. All of your statements will be included in the record completely.

Mr. GLEASON. Thank you, sir.

My name is David Gleason. I am president of the Austin Powder Co., whose principal headquarters is located in Cleveland, Ohio. I am also president of the Institute of Makers of Explosives.

Chairman RIBICOFF. Out of curiosity, how many makers of explosives are there in the United States? How many companies are there?

Mr. GLEASON. In our organization there are 13 companies, sir.

Chairman RIBICOFF. So it is a rather small group of manufacturers?

Mr. GLEASON. However you care to call it.

Chairman RIBICOFF. Well, it is a big country. The 13 companies make most of the explosives?

Mr. GLEASON. I would say in excess of 75 percent, sir. A list of those companies is in my testimony that was submitted.

We welcome this opportunity to appear before the Senate Governmental Affairs Committee to present IME's views regarding the explosive-tagging provisions in S. 333. The IME is the principal safety association of the manufacturers of explosives and its member companies produce well over 75 percent of the commercial explosive products manufactured in this country.

Founded in 1913, IME is a nonprofit organization, primarily concerned with safety in the manufacture, transportation, storage, handling, and use of explosive materials.

This organization has cooperated with all interested governmental agencies since its founding and has a reputation for expertise. Because of this history of cooperation, it is with sober reflection that we are compelled at this time to oppose the explosive-tagging provisions of S. 333.

These tags, made exclusively by the 3M Co., are actually microscopic bits of shattered plastic encapsulated in polyethylene and made up of multicolored layers which can be "coded" by varying the color combination. Tags could be put into almost any substance and used to identify the manufacturer, date of production, lot, et cetera, and with extensive recordkeeping, the different persons, perhaps thousands, to whom parts of each individual coded lot were sold.

The tags are magnet sensitive and fluoresce under a black light. If they could safely be added to explosives, and then survive the detonation, they could theoretically be found and retrieved with magnets.

In fact, experience shows a poor rate of survivability with high order explosives and our limited testing and experience with tags leads us to believe that they will not survive PETN, TNT, RDX, Pentolite, Composition B, and certain high order dynamites.

In addition, tags will not survive detonation of most military explosives which, when sold as surplus, will be required to be tagged under this program.

IME opposes tagging explosives for a number of reasons. Overriding is our deep concern for the safety hazards involved with mixing these plastic chips into our products. We also feel that the benefits to be derived from an explosive tagging program are dubious, and that the program would be grossly inflationary.

I would like to discuss these three points with you briefly.

One: Hazardous. The presence of any foreign contaminant in an explosive is extremely dangerous business and avoided like the plague in the explosive industry. Tags are contaminants and can create friction and may affect the chemical balance in the explosive over a period of time.

In the right, or maybe I should say wrong, combination of circumstances, tags could threaten the lives of the approximately 6,000 employees who manufacture explosives, as well as the lives of the thousands who transport, store, and use these products. BATF's very limited testing program does not even begin to approach adequacy.

Taggants have not been adequately tested in storage, transportation, and use. There are perhaps 1,000 varieties of commercial explosives, and tags have been tested on a limited basis in maybe five. It would take a number of years to test explosives for tags under the varying conditions to which they would be exposed. There is no manmade substitute for the effects of time and the elements.

Two: Ineffective. Although we are not criminal experts, IME feels, and the more it learns of this program it is convinced, that tagging, while sounding like a panacea, would be at best of dubious benefit to law enforcement officers.

First, even if tags could be found after an explosion, they would not identify the bombers, but, rather, that large number of persons who legitimately purchased parts of the lot from which the explosive used in the bombing came.

To give you some idea of how many last-legitimate purchasers might be involved, there would be 60,000 sticks of dynamite in the 20,000-pound production lot which BATF is currently recommending. While this might be another piece of information, it hardly establishes a direct connection to terrorists and is not the kind of information which justifies the extreme cost and hazards involved.

Second, regardless of BATF's misrepresentations to the contrary, tags are very easily removed from most commercial explosives and the process does not destroy the product and neither is it dangerous if done with reasonable care.

This point was demonstrated for many staff members of the House and Senate on April 5, 1979, under the auspices of the District of Columbia Bomb Squad. I would like to pass out pictures taken at this demonstration.

Chairman RIBICOFF. Do you have those pictures with you?

Mr. GLEASON. I do, sir.

May I submit them to you?

Chairman RIBICOFF. I would like to see them now.

Mr. GLEASON. Yes, sir.

Chairman RIBICOFF. You may proceed.

Mr. GLEASON. Thank you, sir.

Third, homemade bombs are easily made from materials which can be purchased in most local communities and which never would be tagged under this program. Detonation of such homemade devices can be achieved with such common materials as cherry bombs or miniature rocket motors, the latter of which can be purchased from most hobby stores.

Because we feel that the ability to make homemade bombs easily and effectively undermines the program, we arranged to demonstrate the ease with which they can be made and can be detonated. This demonstration was also documented with pictures which I would like to hand to you. The pictures should be kept confidential, please, for obvious reasons.

May I call your attention, sir, to picture No. 22 and picture No. 28 in the series?

Chairman RIBICOFF. Which number?

Mr. GLEASON. Picture No. 22. That is a homemade bomb detonating without any commercial explosive device.

Picture No. 28 is the same.

I do not care to go into the description of the pictures. They are for your use. I would not like to have this in the record.

Chairman RIBICOFF. It won't be. We will return these to you, sir, after the three of us look at them.

Mr. GLEASON. Thank you.

Neither of the exercises illustrated by these pictures will be necessary, however, if BATF sticks with its announced proposal of presently tagging only cap-sensitive explosives. Dynamite, according to the BATF, accounts for a mere 4 percent of identified filler material in terrorist bombs. Why bother to remove tags, or stir up a homemade mixture, when well over 90 percent of commercial explosives will still be untagged.

Three: Inflationary. Finally, of dual significance in the proposed tagging program is the impact upon the consumer and, in particular, the many miners who may be driven out of business because of increased costs, as well as the inflationary impact upon the general public, who must ultimately pay the bill.

I raise these points not because it is popular today to oppose legislation for reasons of its inflationary impact but because the cold facts are that based upon the costs of the taggant materials, the code reservation costs, the decreased productivity and product disposal costs which this program would affect, the cost of the explosive product to the consumer will surely double in a very short period of time. It is our feeling that the committee has been badly misled concerning the economic impact of a tagging program upon the explosive industry, its customers and the ultimate consumers.

The Assistant Secretary of the Treasury testified before this committee in March that it will cost 2 cents per pound to tag high explosives. This estimate is so far off the mark as to be ludicrous.

I would ask that the committee refer to 3M's brochure attached to my submitted statement as attachment B, page 2, wherein 3M quotes its price for taggants as follows: Code lots up to 49 pounds, $200 per pound. My company checked with the 3M Co.'s sales representative the week of March 1, 1979, and we were, at that

time, advised by 3M that the prices contained in this brochure remain in effect.

Because of the explosive lot sizes which the explosive industry would be required to produce under a tagging program, we will be required to pay the $200-per-pound price.

Chairman RIBICOFF. A pound of taggants could be used in how many pounds of powder?

Mr. GLEASON. I didn't hear you.

Chairman RIBICOFF. A pound of taggants could be distributed through how many pounds of powder?

Mr. GLEASON. The rate we are advised is there are 5 parts per 1,000. I will get to that, I think. If I don't answer it, I will come back to it, sir.

There will be 10 pounds of tags for each 20,000-pound lot. It is an easy computation to determine that each pound of explosive will require 10 cents worth of tags as follows: 10 pounds of tags at $200 per pound is $2,000. $2,000 divided by 20,000 pounds equals 10 cents per pound for taggants.

Chairman RIBICOFF. What does 1 pound of powder cost on the market today?

Mr. GLEASON. A pound of dynamite, about 40 cents, Senator, I think is a good average number for that, in the retail market, to the consumer.

Chairman RIBICOFF. So it would be 50 cents.

Mr. GLEASON. I haven't completed it yet, sir.

Chairman RIBICOFF. I am sorry.

Mr. GLEASON. That is perfectly all right.

Chairman RIBICOFF. Go ahead.

Mr. GLEASON. The raw material which presently goes into producing 1 pound of cap-sensitive explosive costs 15 cents per pound. If this legislation were enacted, the raw materials which go into a pound of explosives would cost 25 cents.

There is also a code reservation cost.

In addition, we have conservatively estimated a 2-cent-per-pound increase in cost to cover expenses resulting from additional recordkeeping requirements. Contrary to BATF's statements, there will be considerably more recordkeeping requirements if for only the reason that we will be required to produce in lots considerably smaller than those presently being manufactured. Smaller lots means more lots which means more recordkeeping.

To summarize these three cost increase items: the annual expense to industry for the cost of the tag material, $27,500,000; code reservation, $13,750,000; and for recordkeeping, $5,500,000, would be $46,750,000 for just cap-sensitive explosives.

The tag, code reservation, and recordkeeping cost increase for cap-sensitive explosives of $46,750,000 would be substantially increased by the rework throwaway and production dislocation costs.

The above figures are calculated assuming that tagging will only apply to the approximately 275 million pounds of cap-sensitive explosives produced in this country annually. However, S. 333 requires that tags must eventually be used in all 3.7 billion pounds of commercial explosives annually produced in the United States.

When that is accomplished, the total cost of taggants will reach approximately $500 million per year. This figure, gentlemen, will

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exceed the commercial value of the 3.7 billion pounds of explosives sold annually.

This is not all. These figures also assume that the tag density concentration of .05 parts per 1,000 by weight, which is currently recommended by BATF, would be maintained.

I would like to point out that this figure is totally discretionary with BATF under this program, and it is perfectly possible that BATF would require a greater concentration of tags per pound of explosives as a result of their inability to find tags readily after an explosion with the .05-percent concentration.

This is not a particularly theoretical problem, as I am advised during their recent demonstration at Fort Belvoir where BATF blew up a car that it took approximately 1 hour to recover two tags, and this was a controlled demonstration. In a controlled situation, that is hardly success.

The point is that if BATF were to increase the concentration of the taggants, say, double or quadruple, the price of the program would go up proportionately, and we could very quickly be talking about a multi-billion dollar tagging program.

I am not sure how I am on time, sir.

Chairman RIBICOFF. The clock has expired.

Do you want a couple more minutes?

Mr. GLEASON. I think if you will accept this for the record, that is fine.

Chairman RIBICOFF. Your entire statement will go in the record.

Mr. GLEASON. Yes, sir.

Chairman RIBICOFF. We have three more witnesses, and we have four Senators who would like to question you.

Thank you very much.

The next witness is Mr. Charles Turner.

You may proceed, Mr. Turner.

Mr. TURNER. Thank you, Mr. Chairman.

My name is Charles Turner. I am a technical adviser for the Sporting Arms & Ammunition Manufacturers' Institute, usually referred to as SAAMI. I am also a member of ATF's Advisory Committee on Explosives Tagging.

SAAMI is a nonprofit trade association composed of 11 producers of sporting firearms and ammunition and smokeless propellant powders. Smokeless powder is the element of a shotgun shell or cartridge which propels the projectile from the firearm.

The proposed Omnibus Antiterrorism Act of 1979 would require that identification and detection taggants be added to explosive materials under a program administered by the Treasury Department.

Treasury proposes that the tagging program include smokeless powder sold in small bulk quantities to persons who handload their own ammunition, such as firearm owners, gun clubs, and police departments. The National Reloading Manufacturers' Association estimates there are 3½ million handloaders. Treasury, however, does not advocate including in the tagging program the smokeless powder used in factory-loaded ammunition.

SAAMI members are particularly concerned about the illegal use of smokeless powder. But consideration must be given to the effectiveness of using taggants to deal with this problem. In our judgment, the addition of taggants to smokeless powder may pose safety risks and involve heavy cost burdens while providing little, if any, aid to law enforcement agencies charged with investigating bombings.

The first concern of SAAMI members with adding taggants to smokeless powder is the safety of employees and the ultimate customers, the sportsmen and police who handload. Together SAAMI members and Aerospace Corporation, Treasury's contractor, have developed initial test programs for researching: (1) Whether taggants will stratify or settle during powder packing operations, storage or shipment; and (2) whether identification taggants would have adverse effects upon the operation of firearms.

It will require 18 to 36 months for completion of these preliminary firearms tests. Aerospace has directed that testing of firearms not begin until completion of the tests aimed at determining whether the taggants will stratify.

To the best of our knowledge, 3M Co. produces a single type of taggant. There are approximately 30 different sizes or shapes of powder grains and eight different bulk densities, nearly 200 combinations in all. There is a strong possibility that stratification will occur unless taggants with varying shapes and bulk densities can be developed.

The planned safety tests might demonstrate the infeasibility of tagging due to adverse effects upon the safety of firearms, but could only indicate its feasibility. Extensive additional testing would be necessary before the addition of taggants to smokeless powder could be considered.

The lack of benefit from tagging smokeless powder suggests that the safety risks are not worth bearing.

A production lot of smokeless powder is typically between 10,000 and 20,000 pounds, with a range of 5,000 to 50,000 pounds. Typically an individual handloader will purchase a one-half pound or 1-pound canister of smokeless powder. Thus, the last legal purchasers of a given lot of powder would frequently number close to 10,000.

As confirmed by Treasury testimony before the House Aviation Subcommittee last July, a given lot could be sold to 20,000 or more handloaders. These legal purchasers would most likely be spread throughout North America.

It is difficult to conceive what benefit law enforcement personnel could obtain from expending the resources necessary merely to compose a list of 10,000 or 20,000 purchasers, much less to conduct a meaningful investigation to determine which canister so purchased was misused.

It is particularly difficult to conceive of benefits from identification tagging in light of the fact that the explosives used are so often stolen. A tagging program operating at optimum efficiency will only lead investigators to thousands of last legal purchasers.

In addition, Treasury intends to add taggants only to 20 percent of the high explosives produced annually. Treasury also recognizes the total infeasibility of including factory-loaded ammunition within any tagging program. Smokeless powder can be extracted easily from factory-loaded ammunition.

In short, if criminals wish to use legally purchased explosives not containing taggants and do not want to go through the simple procedure of removing the taggants from tagged explosives, there will be ample opportunities. The tagging program can be thwarted without any difficulty.

Furthermore, the committee should recognize the apparent lack of need for this new pervasive regulatory scheme to fight terrorist activities. Testimony presented on H.R. 2441 by the FAA establishes that adding taggants to explosives will not aid in preventing terrorist hijackings or bombings of aircraft.

Furthermore, recent testimony by Assistant FBI Director Donald W. Moore demonstrates that the measures already taken have reduced significantly the threat of terrorist bombings.

There has been a 48-percent reduction in terrorist bombings, from 100 in 1977 to 52 in 1978. In response, we understand the FBI's proposed budget would cut $1.6 million and 70 positions from the FBI's terrorism program. Thus, while Treasury proposes to greatly increase its program against terrorist bombings, the FBI is reducing its efforts.

Given the safety risks and lack of discernible benefit from adding taggants to smokeless powder, the significant costs generated by the program should be given serious consideration. The recordkeeping for commercial, security and tracing purposes required of manufacturers, distributors, jobbers, and retail outlets alone would cause a significant increase in the price of smokeless powder.

As set forth in great detail in our written statement, the costs related to identification tagging only could result in an increase of $2 to $2.50 in the retail price of a 1-pound canister of powder. One-pound canisters currently sell for between $6 and $9. The 25- to 35-percent increase in price may be sufficient to eliminate the cost saving which is a primary reason for the existence of the handloading trade.

Other very significant problems with the proposal to add identification taggants to smokeless powder are detailed in our written testimony.

Many of the serious problems facing identification tagging are not involved in detection tagging because detection taggants are not uniquely coded.

However, the technology for an effective detection taggant is only in the very early stages of research and development. Aerospace does not expect to designate a particular substance for producing detection taggants for testing for 9 months' to 1 year's time. Also, the technology for detecting the detection taggants has not been developed.

In SAAMI's view, until further research and development programs are completed, there is no basis for legislation requiring the addition of detection taggants to smokeless powders.

SAAMI urges the committee not to require the addition of taggants to smokeless powder. The ability of law enforcement agencies to investigate bombing incidents and apprehend criminals will be enhanced, at best, only marginally. There are major questions as to the technical feasibility of adding identification taggants to smokeless powder. The cost of manufacture and distribution of smokeless

powder with identification taggants will greatly increase the cost of this important product to sportsmen.

Thank you.

Chairman RIBICOFF. Thank you, Mr. Turner.

Dr. Moler?

Mr. MOLER. My name is Robert Moler and I am director of the explosives and materials control directorate for the Aerospace Corp. I have a prepared statement that I would like to enter into the record.

Chairman RIBICOFF. Without objection.

Mr. MOLER. I will confine my remarks to the tagging aspects of the program and will summarize only our most recent results. Much of the data that I will report has been developed because the explosives industry has been willing to participate in the research and development, although they do not necessarily support the concept. We are appreciative of the time and effort that they have been willing to direct to these studies.

Identification tagging, in concept, is the addition of a coding element that will survive an explosion and provide a means of tracing the explosive through the chain of sales. We have carried this concept to an advanced stage of development. The taggants themselves are fully developed and have been subjected to an extensive battery of tests to qualify them.

These tests, the majority of which were carried out by the industry, were also largely suggested and designed by them. They have shown that the 3M ID taggants can be safely added to most explosives and are compatible with the manufacturing processes of most explosives.

We have seen no data that would question compatibility or safety, nor have any new or additional tests been suggested. Additionally, we have carried out tests that demonstrate that ID taggants survive explosion and can be recovered and decoded. Some 7 million pounds of cap-sensitive explosives have been safely tagged in manufacture, sold through normal distribution channels, and safely transported and used.

These results are still being analyzed, but it is safe to conclude that tagged explosives can be traced; recordkeeping need not be extensively modified or expanded; cross-contamination is not a significant problem; and survivability in explosives is good. We believe that these data show that for cap-sensitive packaged explosives, implementation can be effected.

A similar story exists for black powder, where compatibility has been demonstrated, cross-contamination is negligible, survivability is excellent, ballistic effects are not detectable, the nonmagnet sensitive taggants are not removable, but are recoverable, and the existing recordkeeping system is completely adequate for tracing purposes.

For cast booster a pilot test is underway. Compatibility and safety will be verified and the other factors will be evaluated.

Testing is at an early stage for ID tagging of smokeless powder. Survivability is good, but the results of the manufacturing compatibility and ballistics testing are not yet available.

A major effort in the ID tagging of blasting caps has been undertaken. This is a challenging concept, one in which several ideas

have been advanced and found wanting. We have proposed what we believe to be a viable system, involving a double plug idea. Unfortunately, we have been unsuccessful in achieving participation by the industry. We are proceeding independently.

Finally, the ID tagging of detonating and fuse cord looks entirely feasible using a UV-cured adhesive, and this system is being developed.

The possibility that a bomber might remove the taggants from black or smokeless powder has been recognized from the beginning. To eliminate this possibility we have developed a nonmagnetic version of the ID taggant and are pursuing the idea of a taggant that becomes magnetic on exposure to an explosion. I have a little vial here.

Chairman RIBICOFF. If you want to make a point with those small bottles, please send it up so we can look at it.

Mr. MOLER. These are a nonmagnetic version of the ID taggants, ones that cannot be removed readily using a magnet.

Senator STEVENS. Were those tests you described made with the new taggant?

Mr. MOLER. Both the black powder and smokeless powder tests all involved a combination of 50-percent magnetic and 50-percent nonmagnetic taggants. All the manufacturers in the test program are using that mixture.

Chairman RIBICOFF. Mr. Gleason showed us some pictures which pointed out how easily it was to take out these taggants. Could you take it out of this batch, too?

Mr. MOLER. No, sir.

Chairman RIBICOFF. You couldn't?

Senator STEVENS. Did I understand you to say you don't think you can remove these at all?

Mr. MOLER. "At all" is a bit too strong a term.

Senator STEVENS. Are they fluorescent?

Mr. MOLER. They are fluorescent.

Senator STEVENS. Have you ever heard of a black light?

Mr. MOLER. Recently the issue of taggant removal from dynamites and gelled slurries has arisen. We have completed an extensive examination of ID taggant removal from 11 different dynamites, gels, slurries, and emulsions. The details are contained in attachment H.

We conclude that a knowledgeable individual having superior motivation and willing to spend a considerable amount of time on each 1- by 8-inch cartridge of explosive is highly unlikely to be able to remove all the taggants and in many cases the repackaged explosives will fail or partially fail to react when initiated with a No. 8 blasting cap.

Nevertheless, in nearly every case we found it to be possible to remove a large percentage, but by no means all, of the taggants by the tedious and lengthy process of extracting them one at a time with tweezers or a magnetic needle after locating them with the UV light.

We conclude that this possibility should be countered as in the case of black and smokeless powders. We can do so easily with the following measures: Make the polyethylene coating opaque to UV

or visible light, such as the taggants I have here. I will give them to the committee so they can examine them.

Chairman RIBICOFF. In other words, with these taggants you continue to use the black light and could take them out?

Mr. MOLER. That is correct.

Senator STEVENS. They have been tested?

Mr. MOLER. Yes, sir.

Senator STEVENS. By the industry?

Mr. MOLER. Not by the industry yet. They are the same materials that are used in all the other taggants. No new materials have been added.

The only difference is that to the polyethylene that is normally used, we have added some carbon black, which is the same material used in the black layer of the taggants.

We can also reduce the size of the taggants by at least a factor of two and thus multiply the total number to be removed, as well as make their removal less effective by magnetic means. If these measures are still not sufficient, we may use a 50—50 mixture of magnet-sensitive and nonmagnet-sensitive taggants in critical explosives. These steps can be effected at an insignificant decrease in survivability or recoverability and at no increase in cost.

The final issue in ID tagging is cost. We have recently completed a new study of cost that is included as part of my written testimony. The results of that study are that for cap-sensitive packaged explosives, ID tagging will cost less than 2 cents per pound. The costs for other materials as well as for detection tagging has been analyzed as well and the data are presented. Percentage cost increases for both ID and detection combined range from 1.7 percent for smokeless powder through 8 percent for packaged cap-sensitive explosives to a high of 23 percent for detonating cord.

Detection tagging is our most extensive effort. The major effort during the past year has been to develop a microencapsulated volative fluid that would give off or emit a detectable vapor for a period of 5 to 10 years. This we have accomplished. Two candidates have successfully passed a battery of tests on emission rates, barrier effects, mutagenicity, toxicity, and atmospheric impact. Three others are nearing completion.

Simulated explosives have been tagged and tested using the Customs-developed baggage examiner and the Brookhaven National Laboratories vapor detector, developed with funding from NOAA. Blasting cap plugs have been successfully formulated that incorporate microcapsules. Simulated cast boosters tagged with the microcapsules have also been made successfully.

The cost of these materials should be about 1.6 cents per pound of cap-sensitive packaged explosives. Addition to smokeless and black powder also appears to be successful.

The next step is to test for safety and compatibility with the various categories of explosives. A contract was recently awarded to Hazards Research Corp. for the safety compatibility tests on black powder. RFQ's have been sent to IME members for compatibility/safety testing of dynamites, and gels/slurries. Two of the manufacturers have declined to bid. A similar RFQ has been prepared for smokeless powders. RFQ's for blasting cap compatibility studies have been issued and responses are awaited.

Detection instrumentation is under intensive development. Three instruments, a CECD developed by Broadhaven National Laboratories for NOAA, an ion mobility spectrometer developed by PCP, Inc., and a Mass Spectrometer. Breadboard instruments of the first two types are available. Prototypes of all three instruments will be available within a year.

Other areas under intensive development include vapor collection, transport, and calibration systems. These areas are being jointly developed by the FAA, the Department of Energy, and the U.S. Customs Service.

In conclusion, we believe that we have achieved workable, safe systems for the identification tagging of most explosives. We have also developed and successfully tested a detection tagging concept that appears to be applicable to all explosives, and are making rapid strides in the development of field instruments.

Chairman RIBICOFF. Did you make available any of these new types of taggants to Mr. Gleason? Have you in the past?

Mr. MOLER. We would be happy to do that.

Chairman RIBICOFF. Do you have any objection to letting him have them now?

Mr. MOLER. Certainly not.

Chairman RIBICOFF. I am curious, Mr. Gleason. You went through the tests and showed us pictures. I don't expect you to do it now, but after you have made those tests, I would appreciate it if you would give us a result of your experimentation with the new taggants, if you could.

Mr. GLEASON. Yes.

Chairman RIBICOFF. If he needs more, you would have no objection to making more available to him?

Mr. MOLER. No problem.

Chairman RIBICOFF. Mr. Murphy?

Mr. MURPHY. Thank you, Mr. Chairman. I have a prepared statement that I will put in the record.

I appreciate this opportunity to appear before the Senate Committee on Governmental Affairs to express the beliefs of the International Association of Chiefs of Police regarding the explosive taggants provision of S. 333.

The IACP is a membership organization with more than 11,000 members in 63 nations. Although the majority of its membership is from the United States, the association believes that this legislation would have a beneficial effect on law enforcement agencies throughout the world, as well as aid in the protection of the world community.

We testified previously on the entirety of S. 333, and we would like to express our support for the entire bill now, even though we are just commenting on taggants.

If I may, I would also like to take this opportunity to support one of your prior witnesses, Mr. Landry, who commented that the International Association supports the flexible posts at the airports throughout the country. We have been in considerable contact with airport managers, airport law enforcement persons, as well as municipal and State law enforcement agencies. We feel and they feel that the flexible post is largely more secure than the fixed post. It would be pretty much like a fixed post for a police officer down-

town as opposed to a flexible post. We highly support Mr. Landry's statement on that, if I may deviate for a moment.

Chairman RIBICOFF. Certainly. We are glad to have that information.

Mr. MURPHY. The IACP supports the tagging of explosives. If bombings are not the worst of crimes, they are indisputably one of the most serious. The widespread death, destruction, and personal injury inflicted by these crimes are often of catastrophic dimensions.

Law enforcement is faced with a growing use of devices dealing with bombs, explosives, and incendiary devices used for the most part as a means of extortion, acts of political terrorism, or by mentally deranged persons whose motives are only known to themselves.

We have three basic categories: The mentally deranged person, the criminal who uses a bomb to achieve a criminal purpose, and the political terrorist whose aim is somewhat different. Yet all three pose the same public safety problem.

As you know, the explosive materials taggants provision amends chapter 40, title 18, of the United States Code, to require the addition of taggants to explosive materials for the purpose of identification and detection.

Bombings presently constitute the principal manifestation of the true terrorism in the United States, and evidence suggests likely increase in this form of terrorism because of, among other things, its symbolic nature. The indiscriminate character of many terrorist bombings, and the patent innocence of so many of the victims, generates a great deal of public support for strong action in this area.

Preliminary figures released by the FBI Bomb Data Center which the IACP originally developed and was subsequently turned over to the FBI in 1975 show that 1,314 bombing incidents occurred in the United States and Puerto Rico in 1977. As a result of these incidents, 22 persons were killed and 159 persons were injured. Resulting property damage exceeded $8.9 million. Figures for 1978 show that 1,278 bombing incidents, both actual and attempted, occurred in the United States and Puerto Rico, and 1979 shows about the same number of bombings as in 1978.

I checked with the FBI Bomb Data Center, as of Friday, and the information is about the same.

The inclusion of black and smokless powders in the tagging provision of S. 333 is essential. It is well known that black and smokeless powders are low order explosives. Therefore, they cause the least physical damage when they go off in a normal small pipe bomb, but they are very effective against personnel.

Further, if they were excepted from the tagging requirements, we may assume that the use of black and smokeless powders in bombing incidents would increase.

In 1978, FALN set off bombs at the Kennedy, La Guardia, and Newark Airports. The ATF currently has spent more than 1,800 man-days on the LaGuardia investigation, and yet the type of bomb has not been determined. These figures do not include the amount of man-days that the New York Police Department has expended

in this investigation. I think that would far surpass that of the ATF.

The cost of taggants certainly is a very serious question, but so is the manpower that is required by law enforcement agencies.

Dynamite used by the FALN has been traced to thefts from construction sites in Colorado and New Mexico. Theft of explosives appears to be the major source of explosives for other criminal elements as well.

The IACP recognizes that to thoroughly investigate an explosives incident, be it a hoax, theft, or actual detonation, cooperation and assistance are required between the Bureau of Alcohol, Tobacco, and Firearms, State and local law enforcement agencies, and the general public.

Terrorist groups are underground and difficult to infiltrate. With the tagging of explosives for detection and identification we will be better able to trace the movements of such groups and determine the size, location, and concentrations of such groups. Further, the tagging of explosives will help law enforcement trace the source of explosives used.

It has been alleged that the taggant can be easily removed from the explosive. This may be true, but it also should be pointed out that the makeshift makers on the wrapper may be easily removed, but frequently are not. The more difficult it is to tag, of course. But the type of person that is involved in the use of the explosive does not always remember to remove the identifying markings that are currently present and easily removable.

The IACP believes that the detection of explosives is a high priority mission in the overall program for the control of the illegal use of explosives. The number and severity of bombing incidents, especially those at various airports and via mailed packages—as you know, a law enforcement official was killed last week with such a device—are ample justification of the need for appropriate means of detecting such bombs.

Tagging explosives at the time of manufacture with a taggant material that can survive detonation, be recovered, and provide an investigative lead has been seriously studied for several years. This concept has gained widespread support among many law enforcement groups because of the scant clues that can presently be found among bombing residues.

The explosives identification and tagging program is intended to clearly demonstrate and document the technical feasibility of adding identification taggants to all commercially manufactured cap-sensitive explosives. The explosive identification tagging concept has three major parts: adding tiny, nonexplodable, coded particles to explosives during their manufacture; recovering and decoding them; and tracing them through distribution records which has been explained far better than I could.

The development of this concept has been pursued as an effort to improve the ability of law enforcement personnel to apprehend bombers and to increase the accountability of those presently responsible for the security of explosives being stored or transported.

The IACP recognizes that ATF and many private groups have been working in this area for several years. We further recognize that tagging explosives for detection and identification requires

complex scientific research as well as technical advancements in the area.

Therefore, the association realizes that passage of this provision of the legislation will not end the drawbacks involved in developing taggants or solve the problem of bombing overnight. However, stringent measures for control and identification should be enacted.

Law enforcement has the grave public responsibility to protect society from those who engage in these illegal bombing activities. We are sensitive to the safety of the individuals who are loading as well as our own departments. We are very cognizant of the statements we are making. The investigative and evidentiary values of tagging explosives cannot be overstressed. Therefore, the IACP wholeheartedly urges the inclusion of the explosive taggants provision in S. 333.

Thank you.

Senator STEVENS. Mr. Chairman, I have to go to help on a schedule today. May I ask, can we submit some written questions?

Chairman RIBICOFF. Without objection.

I was going to sort of limit the questions to one apiece for the first go-round. Would you like to ask a question now, Ted?

Senator STEVENS. No, thank you, sir. I will submit some written questions to the committee.

Chairman RIBICOFF. Thank you.

We will confine ourselves to 5 minutes each. Then after the first 5 minutes, we can have more. Any written questions can be submitted.

This question is for Mr. Knox, Mr. Gleason, and Mr. Turner. It is obvious we have a serious problem; that is, terrorist bombings. We are trying to get at this problem in this legislation and give our law enforcers a means of tracking down these criminals. There is no question in my mind that the three of you are against terrorist bombing. I am sure you decry it, and I am sure you want to do everything you can to stop it. The people you represent are all law-abiding citizens. That is who you want to represent.

It seems to me that you three gentlemen, the industries and groups you represent, have a special and tough responsibility. Right now we have nothing to trace the use of bombs by terrorists. It is just a question of luck. Mr. Murphy has testified how hard it is to get at it.

Let's say we don't use taggants which have been proposed. In the absence of tagging, is there any substitute method that either one of you would suggest we trace back the use of explosives by terrorists? Do you have any suggestions, either one of the three of you?

Mr. KNOX. Mr. Chairman, I do not have any suggested substitute. We have looked at this program. I have been involved in it since about 1972 when Admiral Peterson of BATF first mentioned it to us.

I don't believe that the way they are trying to do it can work. What I am most concerned about is would the cure be worse than the problem? I believe that the testimony that has been presented this morning is at 180 degrees from each other, opposite points shown, on matters of substantive fact. Yet we can't get a direct answer of who is right.

I think we are past the time for an objective review of the entire program, with input from those who are interested. I think the NRA would welcome such a review. But I am amazed by the difference of statements of fact, because somebody is wrong.

Thank you, sir.

Mr. TURNER. I would like to say that I don't think SAAMI is against tagging completely. We are against the presently proposed method of identification tagging especially. We can't say we are against detection tagging because we don't know exactly what detection taggants are going to be proposed.

Most of the objections we have are because we don't know what identification tagging is going to do to the firearms or to our customers. We do know we have been given some horrendous cost increase, we feel. But the most serious problem we see is the tremendous increase in the logistics of keeping track. There is where the big cost is going to be, also.

Now these points do not hold for detection taggants. The detection taggant has none of this. It is not uniquely coded. Also, we feel an identification taggant isn't going to stop the blowing up of an airplane. Detection tagging would.

So again, as I said in my statement, we feel that detection tagging has some good points if they can get over the hurdles of research and very, very esoteric detection instrumentation.

Chairman RIBICOFF. Mr. Gleason?

Mr. GLEASON. It is a reflective question you ask, Senator. If I hear you correctly, you say trace back in your question.

I am not sure that it can or cannot be physically done. I am not sure of that. I am sure that in my personal judgment this is a matter of property damage, but what is far more important in bombings is it is a question of human lives. I am extremely sensitive to that.

My personal major concern is the safety hazards that I truly feel exist in this particular program for the 6,000 people we have making explosives every day. We do not have the knowledge today necessary to assure you, let alone myself and our employees, that this is a sound and safe program.

Chairman RIBICOFF. Mr. Moler, did you go into the safety factors in your research?

Mr. MOLER. Yes, sir.

Chairman RIBICOFF. Concerning the employees who make powder by the use of taggants?

Mr. MOLER. Yes, we did. We have looked at it from the point where the taggants themselves were manufactured all the way through to the final user. Of course, it is never possible to prove a negative; that is, I could never prove unequivocally that some adverse situation may happen. That would involve doing all tests at all times, continually and forever. Nor can anyone else prove that an explosive is safe.

We can prove to our satisfaction that the hazards involved in making tagged explosives are undetectably different from the hazards involved in making nontagged explosives.

Chairman RIBICOFF. Go ahead. I am sorry to have interrupted you, Mr. Gleason.

Mr. GLEASON. I would have to say, sir, that the Institute of Makers of Explosives, which manufactures 75 percent of the explosives in this country, and perhaps in cap-sensitive explosives more than that percentagewise, we are not unanimously in agreement that this is yet a safe program. There are letters in the record to indicate that, sir.

Chairman RIBICOFF. Senator Stevens, Senator Javits, and myself—Senator Javits and myself on one side of this issue and Senator Stevens on the other—are sending today a letter to the Office of Technology Assessment requesting them to review the data and address the following issues: The safety in the use of taggants and the production, storage, and handling; the effectiveness of the taggant program; the regulatory impact; potential effects of partial application; the issues related to survivability; the possible alternatives to tagging explosives for initiators.

I would hope that you gentlemen who are involved in the manufacture of various phases of it, as well as Mr. Murphy and Dr. Moler, would cooperate with the Office of Technology Assessment to try to get the answers to these questions. I am convinced that all five of you have the same objective, as all four of us here.

This is one of the most horrendous of all crimes, and it seems to be getting out of hand. I am positive that all of us want to find a way to trace these dastardly crimes to the perpetrators. I am speaking for all of us in that way, do I not? I am sure that my statement meets with your approval, all of you, irrespective of how you feel about taggants. Mr. Knox?

Mr. KNOX. Yes, sir. Just one thing. I don't hear any mention of cost in that assessment, the cost to the consumer. Perhaps I misunderstood you.

Chairman RIBICOFF. Yes, we do. The regulatory impact to require use of explosive taggants, including recordkeeping cost to the explosives industry and cost to the consumers.

Mr. KNOX. Thank you very much. I would want that in.

Chairman RIBICOFF. I just gave the résumé, but they are all in here.

Mr. KNOX. I see.

Chairman RIBICOFF. Senator Sasser?

Senator SASSER. Thank you, Mr. Chairman.

Mr. Knox, you mentioned that tags would have to match closely in size, shape, and density in order to prevent segregation. Will the segregation problem affect the handloader?

Mr. KNOX. Yes, sir. This is the same thing that Mr. Turner of SAAMI was talking about. He referred to it as stratification.

In the normal loading process, a mechanical powder measure is used. Materials within the hopper which are not precisely the same will segregate. The greatest hazard to the user would be if it segregated, the taggants segregated to the top of the column or at some point within the column; then that charge would consist primarily of taggant. When this happens, then you have a light charge, which could result in the bullet being shoved into the bore and not out. The next round fired could be a normal round and it could blind the user or do other serious damage to the user. That is why it is such a major problem.

Senator SASSER. Mr. Chairman, Senator Stevens wanted me to ask a question for him. I will ask this question on behalf of Senator Stevens, directed to Dr. Moler, at his request.

Dr. Moler, if the new tags, which you referred to a moment ago, and the samples which you have there are neither magnetic nor fluorescent—that is can't be detected under a black light—how would they be retrieved and how would you identify them?

Mr. MOLER. For taggant materials like this one, the fluorescent layer is underneath the black polyethylene. They maintain fluorescence. During an explosion, which has been demonstrated literally thousands of times in our tests at the University of Missouri, polyethylene always burns off in an explosion—in black powder, in smokeless powder or in dynamites.

At that point, the fluorescence becomes visible because there is no further obscuring layer.

For the nonmagnetic taggants, if you use those as well, our tests, also at the University of Missouri, involving a combination of magnetic and nonmagnetic taggants used in black powder pipe bomb devices, showed that in all cases we are able to recover about half as many of the nonmagnetic taggants as we recover magnetic taggants. It is somewhat more difficult. It requires a bit more effort on the part of the person doing the recovery, but you are not at all defeated. And you do not need to have the materials separated in great detail.

As long as you have the taggant in a reasonable amount of debris, you can see it under the microscope and read the code, there is no real problem. You can also do a density separation which further purifies the material.

Senator SASSER. Mr. Chairman, I have one final question for Mr. Knox.

According to the Bureau of Alcohol, Tobacco, and Firearms, in the ballistics testing of black powder, I think you said in your direct testimony that 20 rounds was determined by the manufacturer to be adequate to the manufacturer's satisfaction.

Now if the manufacturer agrees to the test, why would you raise questions about the conclusions, Mr. Knox?

Mr. KNOX. It has been stated that the manufacturer agreed to the test. I have here a letter that is dated May 7 to the chairman, and it is from Goex, Inc., which is the only manufacturer of black powder and which did indeed conduct the test.

The letter states:

> In previous testimony before the subcommittee on explosive taggants, the information presented on the black powder program may have been misconstrued as an endorsement or approval on our part. We have never made a verbal or written statement that approved the addition of taggants into black powder. In fact, because of the short duration of tests, the relatively small amount of powder manufactured with the taggant material (2,300 pounds) the restricted production site to incorporate the taggants and the firing of only 40 rounds—I believe half of those tagged and half untagged—to determine the ballistic data, Goex cannot endorse the addition of taggants in black powder due to the unresolved question of all safety hazards.

They go on to talk about hazards in manufacturing.

My point is that it has been stated that this company has approved the program on the basis of those limited tests. They said the tests are not adequate. This letter indicates they were not adequate.

Chairman RIBICOFF. Senator Javits.

Senator JAVITS. Thank you, Mr. Chairman.

Mr. Knox, Mr. Gleason, Mr. Turner, other than the taggants provision, are you for this bill?

Mr. KNOX. Sir, I haven't read the other provisions of the bill. My people have been concerned about—I believe it is title VII, which is the taggant provision. As far as I know, we have no position on other than that.

Senator JAVITS. You are not for it or against it?

Mr. KNOX. I have not looked at it. If it would be an effective anti-terrorism legislation, we would favor it because we certainly are, as the Senator has said, law-abiding and concerned about these areas.

Senator JAVITS. Would you look at it and let us know, because my experience with the National Rifle Association, its attitude on pistols and other controls of that character, worries me about this. I would like to know if the National Rifle Association is for this bill, other than the taggants. Would you advise us?

Mr. KNOX. We will be glad to take a look at it.

Mr. JAVITS. Thank you.

[The letter from Mr. Knox follows:]

NATIONAL RIFLE ASSOCIATION OF AMERICA,
INSTITUTE FOR LEGISLATIVE ACTION,
Washington, D.C., May 29, 1979.

Hon. JACOB K. JAVITS,
U.S. Senate, Washington, D.C.

DEAR SENATOR JAVITS: During the Governmental Affairs Committee hearing on May 7 you asked me to respond to a question regarding the National Rifle Association's position on S. 333, separate from the concerns we raised about Section 303 of Title III.

NRA believes that any viable approach to countering terrorist activities should be pursued. However, the main text of S. 333 does not fall within the legislative program as mandated by our Board of Directors, and since we do not have the expertise to make decisions on methods to combat international terrorism, we cannot take a position for or against S. 333.

However, we have testified in the past that our objections rest with the tagging provisions of the bill and we have made every effort to assure Members of Congress that we are not opposed to the other provisions of the anti-terrorism legislation.

As mentioned in the hearings, consideration is being given to adding language to S. 333 similar to that adopted by the House Aviation Subcommittee regarding loaded firearms in "baggage or other property which is not accessible to passengers in flight."

NRA strongly supports such a safety measure. We would like to raise one objection, however. In the House bill, the fine for violating this provision is a civil penalty of not more than $1,000 and/or a criminal penalty of not more than $1,000 or imprisonment of not more than one year. We would suggest that in lieu of imprisonment, a higher civil penalty be assessed. We suggest this for two reasons.

First, where a firearm has accidentally discharged and has been so judged, the NRA believes imprisonment and a subsequent criminal record is too punitive. A more positive approach might be to post signs at the airport entrance and ticket counters notifying potential violators of a stiff civil penalty and encourage them to recheck their firearms to make sure they are unloaded. To my knowledge, I have not noticed any signs citing the present regulations posted in any airport. While most firearms owners are aware of the present restrictions, signs would serve as a reminder to those who might inadvertently violate these safety rules.

Second, the penalties for unauthorized persons boarding or attempting to board an aircraft with a concealed deadly or dangerous weapon which could be accessible to that person in flight are the same for having a loaded firearm in baggage. Violations of either of these provisions should not be of the same magnitude. The situation of more serious concern and thus accorded heavier sanction ought to be the one in which the firearm or other weapon is actually at the disposal of the owner.

We request that the Committee give serious consideration to establishing higher civil penalties for violating the baggage requirement while maintaining the criminal sanctions against unauthorized possession of accessible firearms on the aircraft.

Additionally, I would like to make a suggestion that airport officials requiring an inspection of a firearm to see if it is loaded be encouraged to conduct such an inspection in an area not readily accessible to the public view. From personal experience, inspecting a firearm in the lobby of an airport can create a panic situation for anyone not understanding why the firearm is being displayed.

We appreciate having the opportunity to address the Committee on our concerns relating to the tagging program. I hope my letter satisfactorily answers your questions regarding our position on the other sections of S. 333. If we can provide you with any further information, please let us know.

Sincerely,

NEAL KNOX,
Executive Director.

Mr. Gleason?

Mr. GLEASON. Yes, sir. I know of no objections that I have at all, except the safety hazards to the people who manufacture explosives. I think it is well conceived other than that.

Senator JAVITS. Except for the safety of the people manufacturing the explosives. I asked you specifically, are you for this bill other than the taggants?

Mr. GLEASON. Yes, sir.

Senator JAVITS. Other than this provision?

Mr. GLEASON. Yes, sir.

Senator JAVITS. Mr. Turner?

Mr. TURNER. Yes, sir; as far as I know. I heard something said this morning about loaded firearms in baggage. I think that not a patriotic thing to do in the first place. I know all the manufacturers would consider it idiotic to put loaded firearms in baggage.

Senator JAVITS. Mr. Gleason, I have a question for you on safety. You said in your statement that 3M, the manufacturer of these taggants, limits its warranty and you ask how the products can be claimed to be safe with such a warranty.

I would now like to read to you from another warranty, an Austin warranty, your own company. It reads as follows:

Disclaimer of warranties and limitations of liabilities. Products described in this bulletin are sold by Austin Powder Company without warranty; express, implied or statutory or as to merchantability, except as expressly stated in Austin Powder's straight bill of lading. Under no circumstances shall seller be liable for damages for loss of anticipated profits, consequential damages or incidental damages.

I ask you, isn't that about the same warranty as 3M for taggants?

Mr. GLEASON. Respectfully, sir, I would have to have counsel answer that. I am not an attorney. I would like to have counsel answer it. He is present. I would have him answer.

Senator JAVITS. Would you give your name and so on?

Mr. MOLLOHAN. My name is Alan Mollohan. I am with the firm of Rose, Schmidt, Dixon, Hasley, Whyte & Hardesty here in Washington.

I think the point made by Mr. Gleason on the liability question is that the 3M Co. is supplying an exclusive product. They in effect have a monopoly on it. If this legislation were enacted with the tagging provision, BATF would have sole discretion to make the determination of whether tags could be safely used in explosiveness. Having made that determination, the 3M Co. is in a position to sell the tags and to shift all liability for their use to an unwilling

customer—the explosives industry. That is a very enviable position for 3M and the explosives industry is in a very bad position.

In the explosives industry, it is well known that liability for premature detonation of explosives is an absolute. The explosives industry has a very real concern with putting tags into their products and feels it is a safety hazard. They will be forced to use them.

The point made by the 3M disclaimer is while willing to supply the tags, 3M is not willing to stand behind its safety.

Senator JAVITS. Is the answer to my question yes, the warranties you make at Austin Powder and they are making are about the same?

Mr. MOLLOHAN. The difference about it is——

Senator JAVITS. Is it yes or no?

Mr. MOLLOHAN. No.

Senator JAVITS. What is the difference?

Mr. MOLLOHAN. The difference is——

Senator JAVITS. Is there a difference in text?

Mr. MOLLOHAN. The difference is that you can choose your explosive manufacturer from whomever you want to buy the explosives.

Senator JAVITS. But there is no difference in text, is there?

Mr. MOLLOHAN. I don't have a comparison to check.

Senator JAVITS. Make a comparison and let us know in writing what is the difference in text.

Mr. MOLLOHAN. Certainly, sir.

Senator JAVITS. I ask unanimous consent that that be included in the record.

Chairman RIBICOFF. Without objection.

[The information referred to follows:]

U.S. SENATE,
Washington, D.C., May 7, 1979.

DEAR MR. GLEASON: During the hearings on S. 333, the Omnibus Anti-terrorism Act, before the Senate Governmental Affairs Committee this morning, we discussed the subject of the 3M Company's disclaimer for its taggants.

On page 5 of your written testimony, you first quote the 3M warranty as follows:

"3M's only obligation shall be to replace such quantity of the product proved to be defective. 3M shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith."

You imply that this warranty disclaimer raises questions about the safety of identification taggants. You then ask: "If the 3M Company is so convinced that tags do not pose a threat to life and property, then why is it being so careful to contractually insulate itself from liability?

As you are aware, I read another disclaimer of liability at this morning's hearing—that of the Austin Powder Company of which you are President. That disclaimer is cited below:

"Disclaimer of Warranties and Limitation of Liabilities. Products described in this bulletin are sold by Austin Powder Company without warranty; express, implied, or statutory or as to merchantability, except as expressly stated in Austin Powder's straight bill of lading. Under no circumstances shall seller be liable for damages for loss of anticipated profits, consequential damages or incidental damages."

Indeed, all of the explosives manufacturers issue substantially similar disclaimers for their products. Based on the above, it appears that the legal effect of the language used in Austin Powder Company's disclaimer of warranty and the disclaimer used by the 3M Company is, for all practical purposes, identical. I would like to know if you continue to disagree with this and your reasons for disagreeing. Further, I am interested to know why the Institute of Makers of Explosives believes that identification taggants should be held to a higher standard of warranty protection than the explosives in which they are used.

Your prompt consideration and response to these questions is appreciated.

Sincerely,

JACOB K. JAVITS.

50-412 O - 80 - 9

INSTITUTE OF MAKERS OF EXPLOSIVES,
New York, N.Y., May 18, 1979.

Re S. 333—Disclaimer of Liability.

Hon. JACOB JAVITS,
U.S. Senate,
Washington, D.C.

DEAR SENATOR JAVITS: During the May 7, 1979 hearings on S. 333, the Omnibus Anti-terrorism Act of 1979, you observed that the liability disclaimer used by the Austin Powder Company and that used by 3M would, for all practical purposes, have much the same legal effect. Your letter of that date elaborates on this point. Based on this similarity, you inferred that the explosives industry, by objecting to the 3M disclaimer, is attempting to hold 3M's tags to a higher standard of warranty protection than the explosives in which they are used. In light of your inferences, you ask in your letter why we would seek to have tags held to a higher standard of warranty protection than the explosive itself.

Your question misconstrues our point. We do not *per se* seek to have tags held to a higher degree of warranty protection than an explosive. Although there is an obvious difference in the text of the disclaimers, we did not and do not now attempt to distinguish between their legal effect. Our position is now, as before, that it is unfair to force us not only to use a product in our explosives which we believe to be hazardous, but to require us to bear all liability for its use. This is the effect of S. 333 and anticipated regulations when coupled with 3M's liability disclaimers. 3M's statement in its warranty that "[b]efore using, user shall determine the suitability of the product for his intended use" is merely gratuitous in this instance.

We also feel strongly that it is fair to infer that 3M's liability disclaimer, where 3M has participated so aggresively in developing tags and in attempting to prove their adaptability to explosives, is evidence of its concern that tags may not be safely used in explosives.

It is important to keep in mind that the warranties disclaim liability only to the commercial users of the product. The law doesn't recognize any other disclaimer of liability. Thus, 3M's disclaimer puts the explosives manufacturers in a Catch-22 situation: should explosives prematurely detonate, the explosive manufacturer would be strictly liable for all damages to anyone other than commercial purchasers; however, should the explosion be caused by tags, the explosives manufacturer would be unable to recover from 3M because, under the terms of the warranty, it has been forced to assume the risk of using the tags. This is the essence of our objection and it is clear that the terms of our warranty are irrelevant.

We feel that a telling point is made by the fact that 3M is actively promoting development and mandatory use of a product which it exclusively manufactures and which could greatly increase the risk of explosive accidents, while at the same time, ensuring that the risk of using that product is placed completely on the explosives manufacturer.

As always, I welcome the opportunity to clarify any questions you may have concerning our position on S. 333.

Very truly yours,

DAVID M. GLEASON.

Senator JAVITS. I point this up. I would like to offer for the record a letter sent to Chairman Glenn Anderson of the Subcommittee on Aviation in a previous hearing on March 14, which shows that the costs of this taggant manufactured in ongoing status will be $25 to $40 a pound.

Chairman RIBICOFF. Without objection.

[The letter referred to by Senator Javits and a subsequent letter to Senator Ribicoff on the same subject follow:]

3M CO., GENERAL OFFICES,
3M CENTER,
St. Paul, Minn., March 14, 1979.

Hon. GLENN ANDERSON,
Chairman, Subcommittee on Aviation, Congress of the United States,
House of Representatives, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: During the recent hearings on H.R. 1834 and H.R. 2441, before the Aviation Subcommittee, some misinformation was offered regarding the price of 3M Brand MICROTAGGANT Identifying Particles for explosives. Two points were made about taggants for explosives: 1) that 3M would charge $200/lb. for five-pound codes; and 2) that there is a yearly $100 code reservation fee. Both statements are incorrect and we would like to set the record straight.

Reference was made to a price list published by 3M, as the source of pricing information, in testimony on February 28, 1978, by Mr Charles Turner of the Sporting Arms and Ammunition Manufacturers Institute and again on March 1, 1978 by Messrs. Neal Knox of the National Rifle Association and David Gleason of the Institute of Manufacturers of Explosives. The conclusions drawn from that published information are erroneous.

The taggants offered for sale at $200/lb. in five (5) to forty-nine (49) lb. lots have no polyethylene coating and are, therefore, not the same as the coated taggants used in the recently completed pilot test program, conducted by Aerospace with explosives manufacturers.

Further, these taggants are produced in a pilot production facility and their price bears no relationship to what the price of taggants will be from a major facility at some later date. The current pilot facility is not large enough to supply the requirements for national implementation of explosives tagging. A production-scale facility will need to be built to supply taggants for such national implementation. Economies of scale will result in lower prices for taggants—lower than the referenced price list, and lower than the most recent price paid by Aerospace for the pilot test program.

In order to determine whether there are commercial applications for Microtaggants, apart from explosives, it is desirable to get them into the hands of potential customers, so that they can test for themselves whether their own product identification needs can be met using 3M Microtaggants. The referenced price list, and the Product Data Sheet which accompanies it, were prepared for the purpose of offering introductory quantities of Microtaggants to meet the above needs. The reference to explosives in the Product Data Sheet illustrates only *one* use of Microtaggants.

3M has no reason to change its projected price range of $25–$40/lb. for explosives taggant made in production-scale equipment. This price range is a matter of record from testimony given in hearings during the 95th Congress (copy attached).

During the pilot test program, taggants were added to explosives in the concentration of 500 parts per million (ppm). With *this loading, and with taggants priced at $25–$40/lb., the cost of taggants adds 1¼¢–2¢ per pound to the cost of explosives.*

Regarding the second point of testimony by Messrs. Turner, Knox and Gleason, 3M understands that explosives taggant codes will require a five (5) to ten (10) year non-repeat period. *Any code reservation fee, then, will automatically be included in the price of taggants and was included in the $25–$40/lb. estimate. A separate code reservation fee will not apply.*

We hope this information clears the record regarding prices for 3M taggants for explosives.

Very truly yours,

L. J. HESSBURG,
Technical Director,
New Business Ventures Division.

3M CO.,
NEW BUSINESS VENTURES DIVISION,
St. Paul, Minn., May 4, 1979.

Re: S. 333—Anti-Terrorism Bill.

Hon. ABRAHAM RIBICOFF,
Chairman, Committee on Governmental Affairs,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This letter is intended to supply you with facts on the important issues involving the 3M Company as a supplier of explosives taggant materials provided for in the referenced bill. I trust it will be useful to you and members of your committee in the forthcoming hearings of May 7, 1979. The

following issues have been the subject of some confusion and/or misinformation in recent hearings on companion bills in the House:

Explosives tagging

The explosives tagging provisions of S. 333 will require both predetonation (detection) and post-detonation (identification) taggants. The tagging provisions will provide the capabilities to *detect* explosives in confined areas, to *trace* explosives used in terrorist bombing episodes, and will display powerful deterrent to would-be bombers as well. 3M Company manufactures a leading candidate for identification tagging. The identification taggant system developed by 3M provides no capability for gun control measures.

Explosives taggant price

In testimony to the 95th Congress, 3M estimated that identification taggant prices would add 1.25–2.0¢/lb. to the cost of explosives. Our current price estimate has not changed. This price includes the "code reservation fee". Others have testified to the 96th Congress that 3M prices would add as much as 10¢/lb. of explosive, plus 1¢/lb. explosive "code reservation fee". These figures are simply incorrect, and are probably the result of confusion with prices quoted for experimental use in non-explosive applications, some of which are described below. There is no code reservation fee to be added to the above cost for explosives.

3M supply position

S. 333 would not create a monopoly for 3M, since specifications allow utilization of other taggant forms not patented by 3M. The 3M product enjoys only the limited monopoly which a patent confers as provided for by U.S. patent law. 3M development work has been, from the start, internally funded in competition with all other organizations developing explosives taggants, including those *with* Government funding.

Product liability

3M will manufacture explosives taggants to specifications developed by others, because 3M has no expertise in the manufacture, use or testing of explosives. Our warranty, therefore, stops with acceptance of our product by the customer. This warranty is very similar to that used by explosive manufacturers for their own products.

Nonexplosive uses

3M Microtaggants will find use in many non-explosive applications. Current examples under test include:

Medicated animal feed—(pending FDA approval) before slaughter, to determine if proper medication withdrawal schedules were followed.

Cellulose insulation—to identify material made to building code specification for fire retardancy, etc.

Parts and components—to identify manufacturer and to pinpoint liability in case of failure.

Taggants for these specialized uses are manufactured in pilot production equipment to meet these development needs. Prices are $200/lb. or $100/lb., depending on quantity. These prices for development quantities are not to be confused with the prices explosives manufacturers would pay upon full-scale implementation of the tagging program. Such implementation would require a larger factory and, consequently, lower costs. Without taggant legislation, increased capacity is not expected to be required, and taggant prices will remain high for small quantities.

We appreciate the opportunity to make these clarifications and welcome the opportunity to be of further service to you.

Very truly yours,

L. J. HESSBURG,
Technical Director,
New Business Ventures Division.

Chairman RIBICOFF. Senator Pryor?

Senator PRYOR. I just have one question, Mr. Chairman. This question is for Mr. Knox.

Mr. Knox, the testimony that you gave focuses primarily on black and smokeless powder. I understand that last year, in 1978, the NRA's position was to exclude black and smokeless powder from the legislation. But this year NRA's position, as I understand it, is to oppose taggants in all explosives—dynamite, et cetera. Is

this a change in position? If so, I am very curious as to why the change has taken place. I may have misunderstood you.

Mr. KNOX. I believe that you understood correctly, Senator. I would consider it an extension of our position last year. At that time we were primarily concerned with the exemption of black and smokeless powder for the reasons we have gone into today.

What I had increasingly become aware of, as we studied the program, that the program would not be effective. It could not achieve that which it was desired to achieve. And we feel that once it proved to be ineffective, if it were enacted, then there would be pressures upon the Congress to add even more materials, putting black and smokeless back in.

We have seen this before in the matter of gun legislation. When "X" didn't work, they wanted 5 "X". When it didn't work, they wanted 10 "X". Ten "X" still couldn't fix it.

Senator PRYOR. Mr. Chairman, I yield back my time.

Senator JAVITS. I just have one question, Mr. Chairman.

Chairman RIBICOFF. Senator Javits.

Senator JAVITS. Gentlemen, obviously further work is going on in this black and smokeless powder field. You three gentlemen have a very real concern and a very real control. Can we know from you, for example, Mr. Gleason, whether you will cooperate with Dr. Moler's people in any further testing to find out more about this situation?

Mr. GLEASON. Yes, sir. We will cooperate.

Senator JAVITS. What about you, Mr. Turner?

Mr. TURNER. I can't speak for the individual manufacturers, but certainly the SAAMI Technical Office will.

Senator JAVITS. Is there any cooperation required from the NRA office?

Mr. KNOX. I am not aware of any specific cooperation.

Senator JAVITS. But you won't discourage these other enterprises from cooperating?

Mr. KNOX. No, sir. We would not discourage them from cooperating, provided that they had the question of cooperating not as they have presented it to some companies; that is, perform this limited test and on the basis of a limited test say it is good for everything. That has been the basis I believe of the objection from industry.

Senator JAVITS. Let us see what is requested before we jump to the conclusion it is going to be biased. We do have your assurances of cooperation in an effort to ascertain as much as we all can about this matter.

Chairman RIBICOFF. If the Senator would yield, just to extend Senator Javits' question one step further, many of these 13 companies are very large public companies, with all types of testing laboratories. Why don't these companies test independently the whole problem of taggants to satisfy Dr. Moler or anybody else? But it would seem to me you have the means to do independent testing and give us the advantage and give the public and the chiefs of police what your studies are.

These are very prestigious companies. Mr. Gleason, talking for the other manufacturers——

Mr. GLEASON. To the extent that I am able to talk for the other manufacturers, for my own company, sir, I assure you that will be done.

Chairman RIBICOFF. Do we have a list of those 13 companies?

Mr. GLEASON. Yes, sir. They are in the record.

Senator JAVITS. Mr. Chairman, while the Chair is looking, may I just say that is a most pertinent observation on the part of the Chair, because it is a fact that sometimes people get in a routine of being in opposition. I am well aware of the opposition of the NRA to handgun control. I think they are just raising up an apparition for themselves. But be that as it may, that is another argument.

I think the Chair is perfectly right. You have told us you want to get at this thing as hard as we do. Well, help us. Here is one place you can show your public interest, your public spirit, your anxiety to promote the public interest, by doing exactly what the Chairman says. If you don't like their testing, do your own and let us know what you think about it, what you find, because this would be of help.

I am tremendously impressed with the attitude of the chiefs of police. It would be a tremendous help to us in such grave mysteries, for example, as this LaGuardia bombing.

The CIA, by the way, in a study just made public predicts more of the same and an intensification of terrorist attacks. So this is a burning problem for us and for other people. I do hope that the Chair's words will carry very strongly with you.

Chairman RIBICOFF. Let me indicate the extent of the responsibility. I think probably these companies ought to be willing to say where they stand: Apache Powder Co., Benson, Ariz.; Atlas Powder Co., a subsidiary of Tyler Corp., Dallas, Tex.; E. I. du Pont de Nemours & Co., Wilmington, Del.; Energy Sciences & Consultants, Inc., of Minnesota; Ensign Bickford Co. from Connecticut—they are from Connecticut; they are one of the oldest explosives manufacturers. They trace way back to Revolutionary times. I think they have a responsibility. Goex, Inc., of Cleburne, Tex.; Hercules, Inc., of Wilmington, Del.; Ireco Chemicals, Salt Lake City, Utah; Monsanto Co., St. Louis, Mo.; Sierra Chemical Co. of Reno, Nev.; and Trojan Division, Inc., IMC Chemical Group, Inc., Des Plaines, Ill.

In other words, you have some very large, prestigious companies. I am sure that these companies do not want to take the position that out of hand they reject a proposal without independent testing, without their own testing, whether they work or don't work, and whether they couldn't make a contribution for the elimination or the deterrence of terrorism around the world. So I would hope that some of these companies that have fantastically large and extensive laboratories, much larger than Dr. Moler is using at the University of Missouri, would join in this effort. They ought to be willing to do some testing of their own to prove or disprove what Mr. Moler is saying, what we are trying to achieve.

I thank you very much, gentlemen, for your cooperation and your testimony today. The committee stands adjourned.

[The prepared statements with attachments of the panel follow:]

STATEMENT OF NEAL KNOX, EXECUTIVE DIRECTOR, INSTITUTE FOR LEGISLATIVE ACTION, NATIONAL RIFLE ASSOCIATION OF AMERICA

Mr. Chairman, I am Neal Knox, Executive Director of the National Rifle Association Institute for Legislative Action. I am pleased to have this opportunity to present to the Committee our concerns over the explosives tagging proposals of the Bureau of Alcohol, Tobacco and Firearms.

The National Rifle Association, representing the consumers of propellant powders, have been extremely concerned over the tagging program since it was first discussed a half-dozen years ago. Our concerns have grown steadily since that time.

We were initially concerned over both the safety questions implicit in adding a foreign substance to propellant powders and BATF's statements on tagging ammunition.

These latter concerns were not, as Assistant Secretary Davis rather speciously suggested to you, manufactured out of a paranoid fear of gun control. Rather, they were sparked by testimony given by Atley Peterson, BATF's special assistant for Research and Development, before the Senate Judiciary Committee on September 14, 1977. He said, and I quote: "The Board of Governors of the American Society of Crime Laboratory Directors, Incorporated determined that its number one research and development priority was the tagging of ammunition. If we are successful in tagging smokeless and black powders, we will be able to tag ammunition and shall have satisfied this objective."

We knew of no way to interpret this statement other than as an endorsement of ammunition tagging (which, for practical purposes, is a technical impossibility). BATF now pretends to have never heard of the idea, but the testimony speaks for itself.

Our technical concerns over costs, safety, fouling, shelf life, and stability have not been allayed by the information and "explanations" provided by BATF.

If anything, our concerns have been heightened by recent developments. We have seen a claim that firing 20 rounds of tagged black powder is a sufficient test of that product. As consumers, we reject that claim out of hand. It is absurd for anyone to believe that this is sufficient testing. It may be expedient testing; it is certainly inexpensive testing; but it doesn't even approach adequate testing.

Twenty rounds, all from one can of powder, would not be sufficient to establish anything, let alone ballistics or safety characteristics of a contaminent that will be present in varying concentrations in different cans and lots.

Those few rounds were fired, according to our understanding under test procedures involving cleaning the barrel after each shot -- while consumers will normally fire numerous shots without cleaning, usually until the black powder fouling become too severe to accept a bullet without cleaning. I have personally particpated in far more extensive tests of black powder, using electronic pressure-measuring equipment (rather than the obsolescent mechanical pressure-measuring device used in the tests in question) and can testify of my own knowledge that there is a significant increase in breech pressures when an uncleaned bore is fired. Further, with untagged black powder, the amount of pressure-increasing fouling increases progressively with each subesquent shot.

I do not know whether the addition of partially burned taggants, or their residues, to black powder fouling would result in unsafe pressures if the barerel is not cleaned between shots -- but neither does BATF or the manufacturer. No tests have been conducted.

I do not know whether the taggant material would result in rapidly increased wear of the relatively soft barrels used in antiques and replicas -- but neither does BATF or the manufacturer. No tests have been conducted.

In addition, only one grade of propellent black powder was tested. There are four grades of propellent black powder, as well as various types manufactured for blasting purposes and fireworks, each a different size.

BATF has stated in the March 27 rebuttal sheet (which I will directly address later) to our objections to tagging that they are experimenting with tags of the different sizes and shapes needed to match each type of powder to avoid segregation of the tags. According to BATF "these are coming along quite nicely." That is fine, but to the best of my knowledge no one in industry has seen such tags, and they certainly have not been tested.

There are problems inherent here that do not exist with high explosives tagging. Grains of black powder of a given grade are screened to obtain nearly uniform size. Conventional tags are not; they are rolled in sheets and shattered, resulting in a wide variety of sizes. I have a sample of tags provided by BATF if any member of the Committee would care to examine them.

Tags for black powder would have to match these sizes very closely to avoid their separating from the powder during shipment and handling. There would be quality control problems here that simply do not occur in the manufacture of the high explosive tags, and I have seen no discussion of this by either BATF or 3M representatives. Any such problems would, of course, tend to increase the price.

To explain our concerns about segregation of the taggants, consider what happens when sand and gravel are mixed, then shaken. Because of the different size and weight, or sectional density, the sand will invariably separate from the gravel.

Thus far we have discussed only black powder, which is available in four sizes for pistol and rifle use, plus larger cannon and blasting grades, ranging in size from the tip of a sharpened lead pencil to the size of the pencil's eraser. Obviously, one size of taggant cannot be used in those disparate sizes of powder without creating significant segregation problems. (Photos of powders and tags are in Appendix I)

However, the composition of all grades of black powder from one maker is precisely the same; size is the only difference. This is not so for smokeless propellants. More than 50 different types are available from manufacturers for handloaders. An immense number of somewhat different propellants are made available to manufacturers of ammunition, and occasionally these commercial ammuniton propellants are made available to handloaders as a result of excess or surplus powder being made to distributors. Not only do smokeless powders vary in size, many are significantly dissimilar in composition, in deterrent coatings, and in shape.

There are two basic classes of smokeless propellants, "single-base," in which the principal ingredient is nitrocellulose, and

"double-base" which is a combination of nitrocellulose and nitroglycerin. (In addition, there are five grades of Pyrodex, varying only in size, but using a totally different formula to approximate black powder characteristics in firearms.)

Within the two basic classes of firearms propellants, burning rate varies according to the shape and size of the exposed area, including holes through each kernel, and is modified by various deterrent chemical coatings. The three basic shapes are "flake," extruded or "log," and spherical.

Although the reasons for this variety are outside the scope of this testimony, they can be summarized as a variation according to application and according to the manufacturing process.

What is important is that each of this variety of propellants varies according to size, shape and weight. Unless the taggant for type precisely matched those characteristics of the powder, the taggant would -- like sand from gravel -- separate or segregate from the propellant during transportation, handling and the ammunition loading process itself.

The hazard of segregation is that it would result in an individual round of ammunition with a higher percentage of propellant, which could be dangerous under some circumstances, to a round of ammunition with excessive amounts of taggant, which could be extremely dangerous.

To explain, ammunition handloading normally involves pouring the propellant from the can or keg into the long, tall hopper of a powder measure. A drum in the base of the measure is rotated by hand to fill it with powder, then drop it into a prepared cartridge case. To insure uniform filling of the drum, and complete emptying of the drum into the case, the drum handle is forcibly "bumped" at each end of the rotation

stroke. If the composition of any materials in the propellant varies from the propellant itself, the dissimilar materials will segregate during the continual shaking and sliding within the powder measure hopper.

The taggant materials we have seen are very small and light. In all probability, a significant percentage of the tags would migrate to the top of the powder hopper during the loading operation. As a result, the ammunition loaded earlier would contain very few taggants, resulting in somewhat higher breech pressures -- enough to cause a hazard to the shooter under some circumstances.

On the other hand, those rounds of ammunition loaded last would have a charge of fewer propellant kernels and a very high percentage of tags. That is an extremely dangerous situation, not only because there have been reliable reports of excessive breech pressures when too-light charges are used, but a very real possibility would exist that the light charge would merely shove the bullet into the barrel. If a hunter or shooter were not aware what had happened, and that his barrel contained an obstruction, the next shot could -- or would -- cause catastrophic damage to the firearm resulting in blinding or other possible serious injury to the shooter.

Despite the extreme importance of testing this one aspect of tagging, either no tests have been conducted, or none have been publicized.

Every time NRA has raised technical objections to the tagging program, BATF has met those objections by promising another tag. We originally stated that tags, being both magnetic and florescent, could easily be removed from the propellant powders. BATF countered that half would be non-magnetic and coated with graphite to hide the

florescence. Hopefully, the graphite would burn off during the explosion and the florescent particles would be seen and recovered.

However, BATF has provided no information as to how well this works in theory or in reality, and we have not seen such coated tags. Nor have we seen them in different uniform sizes and shapes.

The Congress is simply being asked to proceed before all the information is available.

The tagging program is a classic example of the development of technology for technology's sake rather than for any useful purpose. From the beginning, the focus has been not on the question of "Will tagging accomplish anything?", but "How do we make it work?" The justifications for the program appear to be following the technical developments rather than guiding them.

The justifications for the program are contained, according to BATF, in a 176-page report done for them by Management Sciences Associates. We can only conclude they expected the length of the report to deter anyone from reading it.

That report makes it clear that the justification for explosives tagging rests on an unstable foundation of conjecture, incomplete data, and unwarranted assumptions. The report is very explicit in most cases as to these problems, yet none of that uncertainty has made its way into any of the BATF presentations we have witnessed.

Mr. Chairman, I would urge the Members of this Committee, or your staffs, to read this report independently of any BATF presentation. You cannot help but notice many, many problems with the tagging program. I would like to briefly summarize a few of these:

Cost/Benefit Ratio -- a) The cost figures used in the study bear

no resemblance to those now cited by BATF, and both are orders of magnitude lower than costs cited by industry. However, there does not appear to have been any re-calculation of the cost/benefit ratio based on either set of new costs. b) As for benefits, these are strictly conjecture. For identification tagging, benefits cited are increases in arrests and deterrency. Increases in arrests were based on guesses from 5 BATF agents and 5 police bomb squad experts; the deterrency figure was plucked out of thin air. We submit that the report does not establish any definite benefits for identification tagging.

Stocks of Untagged Explosives -- The report mentions that criminals have a 5 - 6 year supply of explosives, at rates of 1,000 bombings per year, and that to the extent that these are used instead of tagged explosives, the cost-benefit ratio developed for the program will be reduced. However, this is not taken into account in the development of those figures, but only noted as an aside. How anyone could assume that criminals would use tagged explosives while they still have untagged supplies is mystifying, other than it simplifies arriving at a pre-determined conclusion.

Delay in Effectiveness -- The Management Sciences Associates report notes that identification tagging will not reach a break-even point for between 8 to 12 years after initiation. Again, this figure is produced independently of the knowledge that criminals have a 5 - 6 year supply of untagged explosives; no calculations seem to have been done to determine the impact of the use of those untagged explosives on the break even-point.

These are some of the technical problems whith the justifications for the program. However, there are problems with tagging that transcend the technicalities of any report. Two of these deal with the underlying rationale for the entire program. Others lie in the nature

of the explosives distribution system.

The first of these lies with the inescapable nature of the identificationtagging process. It is by nature a regulatory system; it seeks to keep track of the legal possession of explosives and then trace that possession through recordkeeping procedures once a taggant is recovered from an explosion. This sounds good on the surface, but a second look raises serious questions as to the rationality of the assumptions that underlie such a system.

We are in effect being asked to assume that terrorists and criminals obtain explosives in legal commerce, that they properly identify themselves while doing so, and that they will continue to do so once a tagging program is instituted.

I cannot imagine members of the Weather Underground, the FALN, the PLO, or any similar group going into a store, producing correct identification and asking to buy a case of dynamite. BATF reports that nearly 60,000 pounds of high explosives and over 60,000 blasting caps were stolen last year. Over 20,000 of each were not recovered. Law enforcement officials are virtually unanimous in believing that such stolen explosives are the primary source of supply for criminal elements. Since thefts must be reported under current law, tagging in most cases would lead the investigators in a circle. If they were unable to solve the theft when it first occurred, they are hardly likely to do better when a taggant leads them back to the same stolen explosives case months or years later.

The second major problem with the tagging program comes from the nature of bombings in this country. The tagging program is being brought forward under the very appealing cloak of anti-terrorism

legislation. But the tagging program has little, if anything, to do with terrorism.

Both the tagging program design and the figures and justifications offered by BATF deal with all bombings, most of which do not currently appear to be within federal jurisdiction. The MSA study conveniently examines motives for bombings over the past few years. Charts summarizing this, from the MSA study are reproduced below.

Motives	
Malicious Destruction	34.5
Personal Animosity	32.8
Unknown	14.3
Political	10.8
Labor Disputes	4.6
Financial Gain	2.1
Organized Crime	0.8
	99.9

Table 10: Bombing Motives
(FBI Data 1972 Through 1976)
Management Sciences Associates Report
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You will note that 2/3 of all bombings are motivated by either personal animosity or malicious destruction. The latter are noted in the report to be primarily by juveniles. Political, i.e. terrorist, bombings account for only 11 percent. BATF is asking you to authorize

them to embark upon a multi-million dollar program to investigate juvenile delinquencies and attacks by one individual upon another. The need for federal involvement here, and the propriety of authorizing it under the guise of an anti-terrorism program, are not at all clear to me. It also is not clear that BATF has informed this Committee, or any other Committee with jurisdiction over the matter, of the implications of their program.

I would also point out that such a program is not really needed for the few cases of terrorist bombings in this country. The first two paragraphs of the February 5, 1979, Christian Science Monitor article (App 2) tells the story:

> Terrorist bombings in the United States declined sharply last year.
>
> A new survey by the Federal Bureau of Investigation (FBI) shows that the number of domestic terrorist bombing incidents went down from exactly 100 in 1977 to 50 in 1978.

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You will also note that not only are terrorist bombings declining, but that the FBI largely knows who the terrorists are; they simply are unable to catch them. When a terrorist bombs something, he promptly calls the media and tells them about it.

There is another insolvable problem with tagging that goes along with the terrorist question, that of homemade explosives. If, despite all the evidence, the tagging program were successful, terrorists and other bombers would soon know it, and turn to untagged explosives; thereby ending whatever benefit the tagging program might provide. Terrorists are largely well-educated people, more than able to avoid any tagging program by manufacturing their own explosives. However, that may not even be necessary, inasmuch as the bill before you exempts all military explosives and 80 percent of commercial explosives, most of which are capable of being assembled at home, thus avoiding the need for the more exotic made-from-scratch explosives.

I noted with surprise that BATF stated before the Committee that all explosives would be tagged. I have no idea why they would have made such a statement. In prior testimony before other Committees, BATF has acknowledged the limited nature of the program. All explosives are simply not capable of being incorporated within the identification tagging program.

For instance, BATF has stated it would not attempt to tag prilled ammonium nitrate, the principal explosive used today, because there is no difference between commercial ammonium nitrate used for blasting and the far greater amounts of ammonium nitrate used as a fertilizer.

For this to be included in the identification tagging program, records would have to be kept of all fertilizer sales. This, of course, would generate such costs and paperwork as to be unthinkable.

BATF's justification for not recommending the tagging of ammonium nitrate is that the standard ammonium nitrate/fuel oil mix requires a booster charge of high explosive for it to be reliably detonated; and by BATF's theory, that booster charge would be tagged. BATF's allegation has, of course, been proven false as demonstrated by the Institute of Makers of Explosives (IME).

If ammonium nitrate and gasoline are combined, the result is an explosive both more powerful and far more easily detonated than standard ammonium nitrate/fuel oil mix.

Ammonium nitrate and gasoline may be easily and reliably detonated by a booster charge also consisting of homemade materials, thus avoiding the tagging program completely.

Mr. Chairman, some Members of Congress have shared with me the responses they have received from BATF to questions about this particular explosive mixture. These have been so devious that they can only be considered deliberately misleading.

I cannot understand how they could make such statements. I have attached an official government report, (App 3.) dated 1948, which describes how ammonium nitrate fertilizer may be detonated while still bagged, without mixing it with anything. BATF is either completely ignorant about explosives, in which case I question their ability to manage any part of the program, or they knowingly are providing you with false information.

It is understandable that BATF would not want the Congress to know that this program would exempt 80 percent of the commercially available explosives, since such a program would make no sense whatsoever. I leave it to your judgement whether their interest in building a bigger bureaucracy justifies giving such distorted responses to questions.

The list of materials which may be easily and quickly fashioned into deadly bombs is endless. An explosive consists merely of a fuel and an oxidizer, which may either be simply oxygen from the air or a chemical which during burning produces large amounts of oxygen.

As a case in point, a standard U.S. Army manual lists a special charge for use in flattening large buildings; it employs an explosive fuel which every Member of this Committee has in his home--household flour. Reprints of that Army manual are widely circulated in the underground press. Other pamphlets and brochures with such titles as The Poor Man's James Bond, The Militant's Formulary, and The Anarchist's Cookbook are widely available to terrorist groups and contain an endless list of simply-made heinous devices. I have obtained copies of each by mail order. Last year we received in the mail two issues of The Urban Guerilla magazine, put out by the New World Liberation Front. In their Manual of Warfare, they explain how to make ammonium nitrate fertilizer explosives, "kitchen napalm" using soap flakes, and various initiators, detonators, and timing devices from firecrackers, cigarettes, mousetraps and wristwatches. I have supplied several pages from one such publication to the Members of the Committee along with a catalog of other publications, many official Army, CIA, and old OSS manuals, describing in great detail how to make and use homemade explosives. These are in Appendix 4 to this statement.

I believe you will be appalled at the ease with which common household items may be misused because of the nature of the materials. I ask that none of these materials be included in the hearing record.

Among other commonly available explosive substances not covered in this tagging bill--substances not capable of being tagged-- are flammable liquids. I had been aware that an increasing number of "gas bombs"

were being used by terrorist and criminal bombers, but until I read BATF's statistics, I had not been aware that these account for some 39 percent of "criminal bombings"--not just "explosives incidents." Such gas bombs and "Molotov cocktails" are now more frequently used than smokeless and black powder bombs. We can hardly tag gasoline or butane.

The other major problem with the program that comes immediately to mind involves the nature of the recordkeeping requirements it would create. The MSA report cited the need for rapid retrieval of records for the program to be a success. Does this imply computerization? We do not know, and BATF has not seen fit to discuss the matter. However, I do know that it would be incredibly expensive to set up a computer system capable of tracking millions of pounds of high explosives through commercial distribution channels, along with the several million cans of powder sold to sportsmen each year. The nature of the distribution system will also serve to negate the identification tagging program, regardless of whether the sales records are computerized. Powder is generally produced in lots of 10,000 - 20,000 pounds. Each lot would necessarily have identical tags.

However, powder is sold in 1-pound and half-pound cans. Thus, there could be upwards of 15,000 to 20,000 people purchasing identically tagged powder. How this would provide a useful lead is beyond comprehension.

As you are undoubtedly aware, BATF distributed a paper which purported to refute our objections to the tagging program. Needless to say, it does not do so. What is interesting, however, is that it in large part responds to statements we made in the summer of 1978 some of which have been overtaken by more recent developments and which we obviously have not been repeating. I would like to respond to that paper.

Contention: We erroneously claimed BATF had not developed taggants for all the explosives they proposed to tag.

Response: As noted previously, if tags for each of the 50 plus different propellant powders have been developed, we have not seen them. We have seen claims by BATF that they are being developed, but to our knowledge BATF has only a single type of identification tag, and it will probably not fit into any of the powders.

Contention: NRA alleged that BATF has not conducted studies on effects of taggants on smokeless powders.

Response: We made the statement before any tests had in fact been conducted. As to the tests on black powder, regardless of whether the manufacturer accepted them, and there is some doubt as to whether Goex Corporation or Aerospace specified the test, we as consumers completely reject such a limited test. As previously noted, it is clearly inadequate. I would also point out that NRA has been involved with powders longer, and probably has greater staff expertise, than either the manufacturer or Aerospace Corporation.

As to smokeless powders, the tests have not been completed; in fact, to our knowledge they were not even contracted for at the time we made the statement.

We also know that BATF attempted to persuade at least one manufacturer to conduct a very limited segregation test, involving one lot of one type of powder, and one type of taggant, and then sign a statement approving all aspects of tagging of their powders. This completely flies in the face of BATF's statement to this Committee that they "perform every known test to determine whether there is any hazard." Needless to say, the company refused to go along.

Contention: NRA asserts that black and smokeless powders cause only a limited amount of damage, and that recent statistics override our claim.

Response: While it is true that 1978 statistics, just released by BATF, show an increase in powder bombings, our previous statements were based on composit statistics, covering several years. Obviously, the use of any given explosive will vary from year to year. However, we do not believe the composite would be significantly affected by factoring 1978 figures into the previous years. Since BATF has a monopoly on the figures we are unable to do this ourselves, but it seems clear that propellant powders are simply not suited to major terrorist or criminal activities.

Of more importance is the fact that BATF once again supplied this Committee with different information than it provided the House Committee. All the statistics cited in all three documents provided to the Committee on March 27 covered only dynamite, black powder, and smokeless powder. They ignored the fact that, as clearly shown in the statistics given the House Public Works Committee, incendiary devices accounted for 39 percent of bombings last year. This is only 5 percent less than the propellants and dynamite combined.

Incendiary materials are not capable of being tagged. Given the fact that materials such as gasoline can explode as well as burn, it seems much more probable that terrorists and criminals would switch to incendiaries rather than switch to low order explosives such as black and smokeless powders if the propellants were exempted.

Contention: NRA raised false concerns about recordkeeping burdens.

Response: our concerns about the increased costs of propellant resulting from recordkeeping burdens upon dealers have been met with what I consider a totally dishonest response.

BATF states that because of the detailed recordkeeping now required of dealers, their proposal will require the addition of only one more piece of information, therefore the recordkeeping increase is minimal. Their statement is true only for dealers in black powder.

Dealers in smokeless powder do not presently have to maintain the burdensome detailed records required of dealers and wholesalers in black powder. But BATF's tagging program would require such records throughout the distribution chain for smokeless powder. Some years ago, when I researched the size of the handloading components market, there was about 10 times as much smokeless powder and black powder sold. The additional recordkeeping has been estimated by industry to increase the cost of smokeless propellant considerably.

There is also much confusion -- but no hard information -- concerning the increased cost of propellants due to the cost of the tags themselves. BATF has quoted the manufacturer's prices for large quantities of taggants of the same code, although smokeless propellant manufacturers would undoubtedly be required to use no more than the minimum order of five pounds of a single code -- which would charge a 10,000-pound lot of propellant. Further, 3M, the sole manufacturer, showed on its price sheet an additional charge of $100 per year for reserving that code number.

When I testified before a House Committee two months ago, the 3M representative stated that the price sheet I was referring to was for paint taggants, and not for explosives (although the brochure specifically mentioned taggants for explosives). When I asked the 3M

representative what the cost for explosives taggants would be, I was told it was being studied, and that no cost information would be available for a month. It is still not available. However, I have been told that 3M is now claiming the costs would be greatly reduced due to the large quantities of taggants that would be purchased; further, that there would be no charge for reserving a code for 10 years.

The Committee should be aware that if this provision is enacted, manufacturers would not be buying large quantities of a single code, but large numbers of small quanitities of a single code. Further, 10 years is much shorter than the life a propellant. I have a quantity of surplus propellant which I purchased 20 years ago, which was probably made during or before World War II. Like many other handloaders, I have a considerable number of propellants purchased more than 10 years ago.

The cost of recordkeeping, the taggants themselves, the insertion of the taggants and related waste of propellant, would all be borne by the manufacturer, but eventually paid for by the consumer -- our members.

Both for quality control and to satisfy product safety liability requirements, manufacturers would be forced to re-shoot all ballistic data and loading information, then publish the new information before any tagged propellant could be sold. Considering that manufacturers normally engage in two to three years of ballistic and other tests, and considering that most manufacturers do not have adequate test equipment and personnel to make the necessary tests on all propellant types simultaneously, the question of how long certain propellants would be off the market has never been answered. BATF has merely stated that it

would pay for such tests -- presumably with taxpayers' dollars, if their Appropriations Committees approve.

Although BATF has assured Congress that it is testing "for everything," I have heard no mention that they have conducted the required Environmental Impact Statement, presumably on the grounds that taggants are inert. While taggants may be inert at room temperature, what gases are expelled by the burning taggants when they are subjected to the approximately 5,000 K. degree temperatures during firing? As the Committee is undoubtedly aware, much shooting is done indoors, with handloads, on public ranges. Would cancer-inducing carcinogens be introduced into the range environment? (For that matter, has any such EIS been conducted to determine the environmental effects of blasting with tagged explosives in poorly ventilated coal mines?) The law requires such an Environmental Impact Study; has such a study been conducted?

We have tried to determine accurately what these various costs would be, but we -- and the Congress -- have been denied any precise information. Instead we have received only evasive and misleading answers from BATF. At some point we should learn the true costs of this program, but BATF is attempting to make sure that we do not learn those costs until <u>after</u> the program is enacted.

<u>Contention</u>: Some types of powders might be forced off the market by added costs of the program.

<u>Response</u>: We remain concerned. Even if BATF wants to pay for testing, we are not at all convinced that the total costs for the program, and their effect on sales, are known. Even if BATF wishes to use taxpayer dollars to buy the necessary testing equipment (since few manufacturers have adequate equipment to test all propellants simultaneously), and supply the trained personnel necessary to operate it, manufacturers have normally spent two or more years completing loading data, storage and other tests.

In addition, we would comment on BATF's contention that they have invited the manufacturers to conduct any conceivable tests on taggants.

One such test was held on April 5, demonstrating the falsehood of the BATF claim that tags could not be removed from explosives without destroying the explosive and probably blowing the remover up in the process. As you know, the tags were easily and safely removed. BATF refused to attend, but did show up hours later, after everyone else left, to search for tags. They, of course, found none, but if this is an indication of cooperation, it leaves a great deal to be desired.

<u>Contention</u>: NRA states Congress is being asked to approve a program when effects on consumers and law enforcement is unknown, whereas the Management Science Associates study conducted for BATF shows arrests will increase and BATF has experienced an increase in cases forwarded for prosecution when date/shift codes are recovered from

dynamite.

Response: We stand by the contention completely. The MSA study provides most of the evidence against the program, clearly noting the many assumptions and conjectures upon which conclusions are based.

As to the date/shift code, we attach a recent news article on how criminals can also remove it. Furthermore, BATF provided no information as to the nature of the cases where the code was recovered. Were they thefts or bombings? The term used by BATF to express its success rate was "cases forwarded for prosecution." This is a meaningless term. It does not define the type of case, indicate whether the case was strong enough to warrant prosecution, or whether a conviction was obtained. (Appendix 4)

Contention: The Explosive tagging program is designed to help significantly in defeating the bomber, be he criminal or terrorist.

Response: NRA believes the reverse is true: given the large number of ways to avoid tagging, the bomber is much more likely to defeat the program. The bomber may remove the tags, use fertilizer, or make his own black powder or bomb device, steal the explosives, or purchase them with false identification.

Tagging, Mr. Chairman, is a program better designed to expand federal employment than to capture terrorists or even common criminals. Its costs change from time to time, always upwards; its benefits are pure speculation; means of avoiding it are commonplace. We do not believe it can be justified.

[NOTE.—The appendix to this statement is retained in the committee files.]

Testimony of David M. Gleason
On Behalf of the
INSTITUTE OF MAKERS OF EXPLOSIVES
On S.333
Before The
Governmental Affairs Committee
of the
United States Senate
May 7, 1979

My name is David M. Gleason. I am President of the Austin Powder Company of Cleveland, Ohio and also President of the Institute of Makers of Explosives (IME). I thank you for the opportunity to appear before this Committee to present IME's views concerning the proposals contained in the "Omnibus Antiterrorism Act of 1979", S.333, which would require the mixing of "taggants" in explosives.

The IME was founded in 1913 and is the safety association of the commercial explosive industry. It is non-profit and primarily concerned with safety in the manufacture, transportation, storage, handling and use of explosive materials. The member companies of the IME produce over 75% of the commercial explosives manufactured in the United States. It has cooperated extensively with all interested government agencies and has a reputation for competence and professionalism. (Attachment A).

The IME opposes the requirement that manufacturers of commercial explosives mix these plastic chips, "taggants", in explosive products. Taggants or tags are made exclusively by the 3M Company and are actually microscopic chips of shattered plastic composed of multi-colored layers which can be "coded" by varying the color combination. Once coded, tags could be put into almost any substance (they were not developed for use in explosives per se) and used to identify the manufacturer, date of production, lot, etcetera,

and with extensive recordkeeping, the different persons (perhaps thousands) to whom parts of each individual coded lot were sold. While the 3M Company is attempting to adapt tags for use in commercial explosives for obvious commercial reasons, the tags were developed for general use to provide various manufacturing information. The tags are magnet sensitive and, if they survive an explosion, could theroretically be found and retrieved with magnets.

As a part of this Antiterrorist Bill, the Bureau of Alcohol, Tobacco & Firearms (BATF) and the 3M Company are advocating that the tags be mixed with commercial explosives on the theory that the code information would give BATF a "starting place" in the investigation of bombings. (Parenthetically, I am advised that the FBI, and not BATF, has exclusive jurisdiction over almost all terrorist bombings).

There are a number of reasons for IME's opposition to explosive tagging. Overriding is our deep concern for the safety hazards involved with mixing these plastic chips with explosives. Also, the more we learn of the program, the more we are convinced that the tagging proposal is not sound in concept as a law enforcement tool, and that it would be extravagantly expensive, even in excess of industry's previous estimates and far in excess of BATF's projections. I will discuss these general objections to the program under the following headings: 1) hazardous, 2) ineffective, 3) inflationary, 4) anti-competitive.

1. Hazardous.

Why has the IME taken the position so strongly that the explosive tagging program poses potential hazards to the lives of the approximately 6,000 men and women who manufacture explosive

products and to those who transport, store and use them?

Our concern starts with the general proposition learned from experience over many years that foreign contaminants have no place in explosives and that their presence will sooner or later be the cause of a premature detonation. This concern is well justified by the history of the explosive industry. Innumerable disasters occurring during production, storage, transportation and use of explosives have been directly traced to the presence of foreign contaminants in explosive products. Contaminants which are rough edged and hard are of particular concern. The 3M tag is a plastic chip made by shattering a layered sheet of plastic into microscopic bits. They are both hard and rough edged and have the potential to create friction and heat and, therefore, under the right combination of circumstances, a premature detonation.

Contaminants can also affect the chemical balance of the explosive, either over time under many varying conditions or upon detonation. Indeed, some of the testing done by Aerospace, BATF's contractor, showed that there is such an effect. The compatibility testing done by BATF to date, falls far short of taking into consideration all of the conditions to which explosives are exposed.

When the tags reach the explosive manufacturer, they are finished products not manufactured by nor segregated, identified or packaged under the control of the explosive industry. While the composition of materials which we customarily use are items of known properties, tags with their plastic composition and metallic characteristics are, to the explosive industry, items of unknown property. A true determination of whether they can be safely used with all explosives could not responsibly be made without a great deal more testing. There are a myriad of safety problems, some of which I would like to

discuss briefly with you.

Quality Control. Quality control refers to the means by which each company assures that on a day by day, shift by shift basis, contaminants and foreign materials do not find their way into an explosive. With respect to dry explosives, the ingredients are sifted and run over a magnet. This has over the years proven to be an effective, and thus safe, method for screening the many millions of pounds of material used. Stray metal bits, "tramp metal", is one of our greatest concerns. If tramp metal with its rough edges gets into, for example, a nitroglycerin mix, an explosion is a real probability. I assure you that in the past it has happened more than once. Tags are magnet sensitive and, therefore, could not be magnet screened. Short of examining under magnification the millions of tags which would be used, I do not know how quality control of the taggants could be assured. Such an examination process would be extremely time-consuming and prohibitedly expensive.

Also, there is the problem of quality control of the tags themselves. How are we assured that the tags we are receiving are the right size and are all coated properly? We have no control over the quality of this product.

Rework Disposal. Disposal of "reworked explosives" presents additional problems with safety considerations. In the normal course of producing explosives, a portion of the material that comes down the production line is worked back into the production cycle, or "recycled". After the implementation of a tagging program, substantial quantities of this material would have to be destroyed. The financial implications are obvious and very significant.

However, there are also safety considerations. Reworked material must be burned and, with the large quantities involved, the chances of accidents will be substantially enhanced. Also, as an aside, burning explosives in the quantities that will be necessary will definitely have an adverse effect on the environment.

Taggant Contamination. This refers to the possible, and I feel inevitable, buildup of errant tags in the myriad cracks and cranies of the production equipment - the mixing bowls, the tallys, the augers and screws. Normally, the machinery and equipment are cleaned with solvents, but tags would be impervious to solvents and it will be difficult for manufacturers to insure that these chips do not accumulate in these tiny crevices. The potential for an unintentional detonation from friction caused by this kind of tag buildup is very real.

Liability as a Safety Issue. The 3M Company has limited its liability exposure for premature detonation of explosives which might result with the presence of taggants as follows:

> "3M's only obligation shall be to replace such quantity of the product proved to be defective. 3M shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith." (Attachment B, pp. 2 & 3).

Quare: If the 3M Company is so convinced that tags do not pose a threat to life and property, then why is it being so careful to contractually insulate itself from liability? It is awfully easy to say that explosive tagging is "safe" when you are not exposed to the danger and when you are insulated from liability.

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I would like to make one final point on the safety question. On March 23, 1979, Mr. Dickerson testified before this Committee to the effect that some explosive manufacturers have, in the process of reporting results of tests which they conducted under the Aerospace contracts, endorsed the safety of explosive tagging. While Mr. Dickerson does not specifically state that any particular company has affirmatively endorsed the safety of explosive tagging, he does state that "The following documents support the conclusions that the taggants are inherently safe;" and thereafter lists reports submitted by several manufacturers. I have attached to this statement recent correspondence from the following companies: Atlas Powder Company (Attachment C); Dupont (Attachment D); and Hercules Incorporated (Attachment E). Each company has expressed its dismay that BATF would use excerpts from these reports to imply that these companies "support the conclusions that the taggants are inherently safe".

I will not detail all of the reasons given by these companies to refute this contention, but I do invite you to read this correspondence. In response to requests by BATF's contractor, the Aerospace Corporation, several producers of cap-sensitive high explosives participated in a pilot-scale test program which was completed in the first half of 1978. This involved introduction of tags into selected high explosives. Whatever results were noted and reported to Aerospace, the testing program did not demonstrate that explosives could be safely produced with tags under normal production conditions. This is true because the scope of the testing program was limited to determining whether the tags were

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short term compatible with the explosive and whether they could be recovered after detonation. The tags were inserted into the explosive batch by hand without going through the normal production line quality screening processes. The testing program was, therefore, atypical, a pilot project, if you will. One robin does not make a Spring.

2. Ineffective

There are basically two aspects to IME's position that the proposed explosive tagging program would be ineffective. First, we feel that it is conceptually deficient. That is, that the information which could be provided by a recovered tag would be of very little usefulness. Second, explosives without tags - military, homemade, and detagged commercial explosives - are easily obtainable and will be easily obtainable if tagging is mandated.

Conceptually Deficient. BATF and the 3M Company are advocating that these tags be mixed with commercial explosives on the theory that the information provided by the tags would give BATF a "starting place" in the investigation of terrorist bombings and they admit that tags, at best, could only identify that number of persons who legitimately purchased parts of the lot from which the explosive used in the bombing came. (Of course, assuming that the material used in the bombing was commercially manufactured and the tags had not been removed.) The question has to be asked: Is identifying these last legitimate purchasers of sufficient help to investigators to justify all of the safety risks and the tremendous expense and production dislocations which this program will entail?

Although not an expert in criminology, common sense tells me that the answer is "no". It is dubious to suppose that this information can materially aid a sufficient number of investigations to justify the risks and costs. This is true, as it is true that just because one can identify the last owner of a stolen car, the identity of the criminal who used the car in a bank robbery is not revealed. Furthermore, in the vast majority of terrorist attacks, the perpetrators are eager to identify themselves and cannot take credit for the incident fast enough.

Availability of Untagged Explosives. There are numerous ways that a bomber can obtain untagged explosives if this legislation were enacted.

BATF recognizes that one of the mandatory requirements to an effective tagging program is that the tags cannot be removed prior to detonation, and BATF has on several occasions represented to the Congress that tag removal is virtually impossible (Attachment F, pp. 4,5&6). Regardless of BATF's misrepresentations to the contrary, TAGS ARE VERY EASILY REMOVED FROM MOST COMMERCIAL EXPLOSIVES AND THE PROCESS DOES NOT DESTROY THE PRODUCT - AND IT IS NOT DANGEROUS IF DONE WITH REASONABLE CARE. It simply requires a dime store magnet and a black light. The terrorist can slit open a stick of dynamite, obtained legally or illegally, sweep the material with a magnet, make sure with ultraviolet light that no particles remain, and then repack his dynamite in the original wrapper, or a yogurt cup or an ice cream carton. The bomber then has a clean explosive device. To insure that this can be done easily, I asked IME's technical consultant , Mr. Deane Boddorff to conduct a tag removal demonstration. This was done successfully and easily under the auspices of the District of Columbia Bomb Squad before many staff members from both the House and Senate on April 5, 1979. Please refer to Attachment F, p.3 for details. Also, I would like to pass to the Committee members and staff a series of pictures which document the April 5 tag removal demonstration . I believe that even BATF would now have to admit that it is incredibly easy to remove tags from a substantial bulk of commercially made explosives.

This program is further rendered ineffective by the fact that HOMEMADE BOMBS ARE EASILY MADE FROM MATERIALS WHICH CAN BE PURCHASED IN MOST LOCAL COMMUNITIES AND WHICH WOULD NEVER BE TAGGED UNDER THIS PROGRAM. Detonation of such homemade devices can be achieved with such common materials as cherry bombs or miniature rocket motors, the latter of which can be purchased from most hobby stores. There are any number of "homemade bomb" recipes, which have been recited by previous witnesses before this and other Congressional committees. To demonstrate how easy it can be done, I requested our IME technical specialist to make and detonate a homemade device. The whole process from buying the materails in the local hobby and hardware stores to detonation was documented with pictures which I would like to pass out to the Committee at this time.

Tag removal and homemade bombs are two simple ways of circumventing tagged explosives and render the proposed tagging program virtually useless. It should be noted that assuming this legislation were passed and tags were mixed into the required explosives, only 50% of all the bombs detonated in 1976-1977 could have contained tags.*/ And if any bomber were concerned that tagged explosives would aid in his capture, he could easily switch to an untagged alternative. In his testimony before this Committee on March 30, 1979, Mr. Richard J. Davis stated at page 8 that "the explosive tagging program is designed to help significantly in defeating the bomber, whether he is a terrorist or any other form of criminal". The fact is that an explosive tagging program could be easily defeated by any bomber.

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*/ Explosive Incidents, 1977 Annual Report, BATF

3. Inflationary.

S.333 and similar legislation pending in the House will require manufacturers of explosives to pay all the costs for the addition to their products of taggants which make no contribution or improvement to the explosive product in terms of safety, effectiveness or utility, and instead, present real hazards to those who manufacture, transport, store and use the product. In his testimony before this Committee on March 30, 1979, Mr. Davis testified in regard to costs that "... I would like to note that the cost of tagged high explosives has been calculated at 2¢ per pound of the tagged explosives". Wherever Mr. Davis received this information, he is grossly misinformed.

There are a number of factors which go into an analysis of the impact which a tagging program will have on the cost of explosives. First, is the cost of the taggant material itself. There are also the recordkeeping, production disruption, additional personnel and material throwaway costs.

In computing the increased cost which will result from the price of the taggants themselves, the IME has, in previous testimony before the Congress, used a $200 per pound figure for the taggants. This figure is based on quotations contained in 3M promotional literature which was sent to manufacturers as recent as January 31, 1979 (See Attachment B, p.2). BATF has recently testified before the Congress, and 3M Company has also represented to the Congress recently, that although 3M's promotional literature does quote the price of taggants at $200 per pound, that it will actually be charging a lesser figure, probably in the neighborhood of $40 per pound. I cannot reconcile these two figures, but would simply point out that 3M is quoting a $200 per pound price to industry.

Only time will tell, but if this legislation did become law, the 3M Company would have a monopoly and it has been my experience in business that monopolists have very little incentive to reduce prices. And, of course, the obvious question is, if 3M truly intended to market tags at $40 per pound, why is the price being advertised at $200 per pound?

BATF has indicated that at this time it intends to exempt tags from introduction into explosives except for the approximately 275,000,000 pounds of cap sensitive explosives. BATF is presently advocating a mixture of .05 percent of tags for each pound of explosives, which would mean that in order to tag the 275,000,000 pounds of cap sensitive explosives, it would require 137,500 pounds of tags. Using the $200 price, (which until 3M begins to market the product at a different price to customers we feel it legitimate to use) the cost of taggants will be approximately $27,500,000 annually. That means that for each pound of explosive material, the explosive manufacturers will have to add 10¢ worth of taggants ($200 per pound X .0005 tags per pound = 10¢.) Presently, the raw material for a pound of explosives costs approximately 15¢. Therefore, the taggants at 10¢ per pound of explosive will represent a cost increase for <u>just the raw materials</u> of 66-2/3%. We think that that is a frightening increase in cost.

However, thatis not all of the increase which will result from tagging. Please refer to page 2 of the 3M material once again. (Attachment B, pp. 2&3). It states:

> "Price includes code reservation for the first year. The code(s) assigned to a specific customer will not be sold to anyone else for a period of one year. Reservation can be continued each year by paying a $100 renewal fee per code."

Using the 275,000,000 pounds of cap sensitive explosives produced each year, and at production runs of 20,000 pounds per code,*/ 13,750 coded lots will be produced per year. At $100 per code reservation, the cost is $1,375,000 per year, for lots produced in that year. Assuming codes will be reserved for 10 years (and this is a reasonable shelf life for a substantial portion of explosives), the cost per year will accumulate to $13,750,000 in the 11th year. That is, after 10 years, industry will be carrying a total code cost burden not only of the cost of reserving the code for that year, but also for the preceding 9 years. After the 10th year, industry would be paying to the 3M Company $13,750,000 annually, <u>just for code reservation</u>. ($100 X 13,750 coded lots X 10 years = $13,750,000).

In addition to the raw material and code reservation cost, we have conservatively estimated a 2¢ per pound increase in cost to cover expenses resulting from additional recordkeeping requirements. This, frankly, is very conservative. Although BATF has represented that the recordkeeping cost should not increase because of the recordkeeping requirements of the date shift code, I feel that the contrary is true. Presently, date shift code covers lot sizes of approximately 100,000 pounds. BATF is now recommending lot sizes for tagging of 20,000 pounds. That means that record-keeping requirements will be increased by a multiple of approximately 5. Estimating 2¢ per pound increase in recordkeeping cost means that the yearly cost for this purpose to industry of the tagging

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*/ This is the code lot size which BATF is presently recommending.

program would be $5,500,000 (2¢ X 275,000,000 pounds = $5,500,000).

To summarize these cost figures: the annual expense to industry for the cost of tags is $27,500,000; for code reservation is $13,750,000; and for recordkeeping is $5,500,000, and the total will be approximately $46,750,000.

This figure, although staggering, does not, by any means, represent the total cost of the tagging program on industry. The cost of revamping production processes and equipment would at this time be difficult to compute. It will be a very real and significant cost, however, and, based upon experience gleened during the limited testing program where tags were put into explosives at a Dupont plant, Dupont officials estimated that the process would reduce their production capability by 15%.

Also, as a part of the manufacturing process, a reasonable amount of the explosive product is "reworked"; that is, reintroduced or recycled into the production line for various reasons and mixed with other batches. This practice would, of course, result in a mixing of codes and would, in substantial part, have to be discontinued. The result, of course, would be a substantial throwaway loss. That would be wasteful, decrease productivity greatly, and result in substantial cost increases.

Based on the limited testing various companies concluded that the recordkeeping and tagging process would require the hiring of at least 1 person on each line. This is a substantial increase in employment and thus costs, as there are on the average only 3 to 5 people working on an explosives production line.

There are two variables which would be completely under the control of BATF and which could substantially increase the cost of the tagging program. They are: 1) the taggant concentration per pound of explosives, and 2) the explosive lot size. Presently, BATF is recommending .05% tags by weight and production in lot sizes of 20,000 pounds. An increase in the concentration to, say, .10% tags would double the cost of the tag material. Likewise, a reduction in the production lot size would result in greater production costs. I understand that BATF was only able to find 2 tags after 1 hour of searching at its Ft. Belvoir demonstration recently. These kind of results could easily lead to their increasing the tag concentration.

I feel that these represent conservative estimates of what the tagging program will cost if it is limited to cap sensitive explosives. What should be understood is that S.333 requires that "tags" eventually be introduced in all commercial explosives, with certain exceptions. The BATF cannot intend that "taggants" shall forever be reserved for cap-sensitive explosives, which comprise less than 10% of commercial explosives produced in the United States. The statute is to the contrary. When BATF gets around to mandating tagging all explosives, the costs will just be astronomical. There are approximately 3.7 billion pounds of commercial explosives annually produced in the U.S.A. The total cost for taggants would reach approximately $490,000,000 per year.

4. Anti-competitive.

At this date, only one company (3M) is prepared to manufacture these "tags". There is no competitor on the horzon; indeed Westinghouse, an early competitor, dropped out because adding tags to explosives is dangerous business and the potential for damages in product liability suits was more than it desired to expose itself to. Instead, the 3M Company has transferred this potentially massive liability to the explosive industry.

Thus, this legislation will not only create a government enforced monopoly, but also subject explosives manufacturers to product liability suits because of the addition of an ingredient to their products which is hoped by BATF to combat terrorism but does nothing to aid the explosive.

In the long run, Congress, not Treasury, should make the determination of when this infant technology should be forced upon the business world, if ever. Treasury wants the power to determine which explosives should be tagged and which excluded. Tagging some, and not others, will add to manufacturing costs and insurance expenses for the "some". This, too, is anti-competitive. The tagging section of S.333 does little to help the fight against terrorism while it violates basic concepts of the antitrust laws and the principles of due process of law. Although 3M may be entitled to a patent monopoly, it is not entitled to a government compelled market.

In summary, we feel that tagging explosives is potentially very hazardous business. In addition, the program would be of marginal benefit at best and would be highly inflationary.

[NOTE.—The attachments to the testimony of Mr. Gleason are retained in the committee files.]

STATEMENT OF CHARLES F. TURNER, REPRESENTING THE SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE

My name is Charles Turner. I am a Technical Advisor for the Sporting Arms and Ammunition Manufacturers' Institute, usually referred to as SAAMI. I am also a member of ATF's Advisory Committee on Explosives Tagging.

SAAMI is a non-profit trade association composed of 11 producers of sporting firearms and ammunition and smokeless propellant powders. The central purpose of SAAMI is to provide a forum for the industry to consider technical matters that bear upon the safety of firearms and smokeless propellant powders.

I. INTRODUCTION

The proposed Omnibus Antiterrorism Act of 1979 (S. 333) would require that "identification" and "detection" taggants be added to "explosive materials", including smokeless powder. SAAMI strongly urges the Committee not to require the addition of detection or identification taggants to smokeless powder sold in cannisters to handloaders of ammunition even should the Committee decide to require the addition of taggants to any explosives.

The prevention of bombings and the apprehension of criminals who use explosives or smokeless powder in acts of terrorism and destruction is supported by all law-abiding Americans. As producers of smokeless powder, SAAMI members are particularly concerned about the illegal diversion of their product from its intended use in ammunition for hunting and target shooting. However, consideration must be given to the effectiveness of using taggants to deal with this problem. In our judgement, the addition of taggants to smokeless powder poses serious safety risks and

involves heavy cost burdens while providing little, if any, aid to law enforcement agencies responsible for investigating bombings.

A. The Handloading Trade

Smokeless powder is the element of a shotgun shell or cartridge which propels the projectile(s) from the firearms.[1/] Smokeless powders are sold in bulk to commercial loaders of ammunition. Smokeless powders also are sold through a complex distribution chain in small amounts to firearms owners, to gun clubs and to police departments. These individuals, gun clubs and police departments form what is known as the handloading trade. The National Reloading Manufacturers' Association estimates there are three and one-half million handloaders. The total market for smokeless powder sold to the handloading trade is only 4-to-4.5 million pounds per year.[2/] The issue raised before the Subcommittee is whether the smokeless powder sold to the handloading trade should be subject to tagging under the proposed legislation.

Typically an individual handloader will purchase a 1/2 pound or 1 pound cannister of smokeless powder. With new or used cartridge cases, he will load his own ammunition. Hand-

1/ There are many different smokeless powders. To achieve ballistic specifications tailored to propelling over 1000 different shotgun, rifle, revolver and pistol loads, the grains of smokeless powders are formed in a large number of sizes and shapes and bulk densities

2/ The total market for cap-sensitive explosives is approximately 600 million pounds, while the total market for all high explosives is 3.7 billion pounds per year.

loading ammunition is less expensive than purchasing factory loaded ammunition. In addition, handloaded ammunition can be tailored to provide the specific charge desired by the individual for hunting or target shooting.

Handloading is of great importance to the nation's sportsmen and hunters. The National Reloading Manufacturers' Association estimates that 1.4 billion centerfire metallic and shotshell loads and 4.2 billion rimfire cartridges were hand-loaded in 1977.

Consequently, it must be recognized that the regulation of smokeless powders is not regulation of commercial explosives. It is regulation of ammunition powder purchased by law-abiding firearms owners.

B. Adding Taggants to Smokeless Powder

ATF testified before the Subcommittee on Criminal Laws and Procedures of the Senate Judiciary Committee that because bombs made of smokeless and black powders, "produce a low-order explosion, loss of life, injuries, and property damage are small".[1/] In fact, ATF statistics demonstrate that bombs made of smokeless powder cause 2.6 percent of the fatalities from bombings (based upon figures for April 1975 through July 1977). The FBI reports that all bombings in 1977 resulted in 22 fatalities.

The use of smokeless powder in criminal activities

1/ Testimony of A. Atley Peterson of ATF before the Subcommittee on Criminal Law and Procedures of the Senate Committee on Judiciary, September 14, 1977.

should be of concern to the Committee, our industry and the public. However, ATF's past testimony suggests that the benefits of tagging smokeless powder may be quite limited. The Committee should carefully weigh those benefits against the problems and adverse consequences of tagging smokeless powder.

The addition of identification taggants to smokeless powders sold in canisters for reloading raises the following problems:

(1) A lot of smokeless powder will typically be distributed to 10,000 to 20,000 sportsmen for handloading. It is questionable whether such a list of last legal purchasers of powder containing a particular taggant would be of any benefit to law enforcement agencies investigating the criminal misuse of smokeless powder; particularly since explosives used in bombings are so often stolen.

(2) It will be at least 18-to-36 months before preliminary tests with the only identification taggant currently available will provide information as to whether taggants may cause fouling, ignition or other operational problems with firearms. Extensive additional testing would be necessary before the addition of taggants to smokeless powder could be considered. Years of production experience, gained while placing employees and sportsmen at risk, would be necessary before the safety of taggants might finally be established.

(3) Identification taggants cannot be added to smokeless powder during the normal manufacturing process without a significant proportion of powder being rendered unmarketable.

(4) It is unknown whether a sufficient variety of

identification taggants can be developed to match the numerous different grain size and shapes and densities of smokeless powders such that taggants will not stratify in shipping or be easily separated from the powder by those inclined to use smokeless powder for criminal purposes.

(5) The monopoly position which would effectively be granted to the producer of the identification taggants could result in exorbitant prices being charged for taggants and in serious disruption of the manufacturing of smokeless powder.

(6) The recordkeeping required of manufacturers, distributors, jobbers and retail outlets for smokeless powder alone would cause a significant increase in the price of smokeless powder. It can be conservatively estimated that recordkeeping requirements only for manufacturers, distributors and jobbers could increase the price of a 1 pound canister of smokeless powder, currently selling for between $8 and $9, by $.80. We have not been able to quantify the cost of recordkeeping for retailers, but the dealers we have consulted believe it would be significant. Although until recently it was believed that the cost of taggants would be only a few cents per pound of powder, it is now clear that the cost of taggants could be as significant a cost as recordkeeping. At current prices for taggants, the cost to add taggants to smokeless powder could be $.70 or more per pound of powder, depending upon the number of taggants added to the powder and the number of years for which the taggant code need be reserved. The price of taggants suitable for smokeless powder will likely increase due to the numerous different

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grain size and shapes and densities of smokeless powder and the need for matching taggants. There would be additional costs at all levels of distribution which would significantly increase the price of smokeless powder. The additional costs to manufacturers would include the cost of storing and inventorying taggants of all different sizes and shapes and densities; of actually physically blending taggants into the powder; and of powder rendered unmarketable by its failure to meet ballistics specifications after the addition of taggants. The additional costs of distributors, wholesalers and retailers would include the cost of storing powder in such a manner to facilitate recordkeeping and inventorying, and time spent with ATF providing tracing information. In total, the costs related to identification tagging only would likely result in an increase of $2.00-to-$2.50 in the retail price of a one pound cannister of powder currently selling for between $6.00 and $9.00, or approximately a 25-to-35 percent increase. The increase in price may be sufficient to eliminate the cost saving which is a primary reason for the existence of the handloading trade.

Many of the serious logistic problems which would be encountered in adding identification taggants to smokeless powder would not be involved in adding detection taggants because detection taggants are not uniquely coded. The recordkeeping and storage for the uniquely coded identification tagged powders would not be necessary for detection tagged powders.

However, as Aerospace Corporation testified tefore the Subcommittee on Criminal Laws and Procedures of the Senate Judiciary Commttee, the technology for an effective detection

taggant is only in the very early stages of research and development. At a meeting held February 1, 1979, Aerospace Corporation reported to SAAMI representatives that the development of detection taggants has continued at a slow pace. Research has progressed only to the point where eight or nine candidate substances have been identified in the laboratory. Aerospace does not even expect to designate a particular substance for producing detection taggants for testing for nine months' to a year's time. Also, the technology for detecting the taggants has not been developed.

While detection taggants would not pose many of the problems of identification taggants, there are major technical and economic questions yet to be resolved. The nature of these issues can be illustrated by ATF's consideration of aromatic amines as detection taggant material. Some vapor producing amines can decompose into ammonia gases. A brass cartridge case exposed to ammonia vapors over a period of time could stress crack and fail upon firing, possibly resulting in a serious injury to the shooter.

In SAAMI's view, until further research and development programs are completed, there is no basis for legislation requiring the addition of detection taggants to smokeless powders.

SAAMI urges the Committee not to require the addition of taggants to smokeless powder. The ability of law enforcement agencies to investigate bombing incidents and apprehend criminals will be enhanced, at best, only marginally. There are major questions as to the technical feasibility of adding identification taggants to smokeless powder. The cost of manufacture and distribution of smokeless powder with identification taggants will

greatly increase the cost of this important product to sportsmen.

II. SMOKELESS POWDER DISTRIBUTION

A. The Market Structure

As Aerospace stated in its 1977 Annual Report, "Explosives Tagging and Control", prepared for ATF,

> The smokeless powder chain is quite complex. Excluding from consideration sales to the Armed Forces or to commercial ammunition loading companies, and concentrating on smokeless powder sold in cannisters at retail for handloading, there is a total market of 4 to 4.5 million pounds per year. Hercules sells to 9 National distributors; Olin sells to 19; and DuPont sells to 9. The distributors sell to hundreds of jobbers and compete with each other on this level. (Aerospace Annual Report at 3-23.)

The nine master or national distributors for Hercules Incorporated sell powders to between 500 and 600 distributors and jobbers. E. I. DuPont de Nemours & Company master distributors sell powders to approximately 500 lesser distributors who, in turn, sell to over 20,000 jobbers. The retail outlets for smokeless powder are the many thousands of federally licensed dealers. The ultimate consumer, the handloader, normally buys a 1/2 pound or 1 pound canister of powder.

As noted earlier, a production lot of smokeless powder is typically between 10,000 and 20,000 pounds, with a range of 5,000 to 50,000 pounds. A given lot of powder normally will be distributed by the manufacturer to more than one national or master distributor. 1/

1/ A typical Hercules Inc. bill of lading is attached hereto as Exhibit A and shows a sale of about 27,000 pounds of 21 different items with 2,000 pounds being the largest quantity of any single powder, except for one item of 10,500 pounds.

The master distributors will sell powder from a particular shipment to numerous lesser distributors and jobbers. 1/

The jobber normally markets powder in small quantities to retail outlets in his local marketing area, and may ship powder in very small quantities to such outlets throughout the country. A 25 pound case of powder (containing 25 one-pound canisters) purchased by a jobber might be shipped by the jobber to 25 different dealers. The retail dealer purchases handloading powder at frequent intervals and in small quantities because of prevailing government regulations regarding shipping and storage of powder.

B. Effect on the Usefulness of Taggants

The complex structure of the smokeless powder distribution system would have a profound effect upon the usefulness of the proposed identification taggants program. Any given lot of smokeless powder sold in cannisters will typically pass through at least four levels of distribution before finally being sold throughout the United States to thousands of individuals buying 1/2 pound and 1 pound canisters. We question whether in this situation there would be benefit to law enforcement from the presence of identification taggants in smokeless powder which a terrorist uses in a bomb.

The last recorded purchasers of a given lot of powder

1/ Exhibits B1 through B6 are typical bills of lading for Hodgdon Powder Company, the largest distributor of smokeless powder, which repackages powder under its own brand name.

would frequently number close to 10,000. A given lot could be sold to 20,000 or more handloaders.[1/] These legal purchasers would most likely be spread throughout the United States. It is difficult to conceive what benefit law enforcement personnel could obtain from expending the resources necessary merely to compose a list of the 10,000 or 20,000 purchasers, much less to conduct a meaningful investigation to determine which cannister so purchased was misused. The large number of ultimate purchasers greatly enhances the possibility of harassment, intentional or not, of law-abiding dealers and handloaders.

In fact, there may be a need to investigate many more than than 10,000 or 20,000 sportsmen. In testimony before the House Subcommittee on Aviation, Brock Adams, Secretary of Transportation, testified that terrorists generally are "very sophisticated" criminals.[2/] Richard Davis, Assistant Secretary of Treasury, similarly testified that "bombing is a very special kind of crime . . . that is committed as a result of a great deal of planning usually".[3/]

1/ These statements were confirmed substantially by Richard Davis, Assistant Secretary of the Treasury, and A. Atley Peterson, Program Director, ATF, in their testimony before the Subcommittee on Aviation of the House Public Works and Transportation Committee in July 1978. Mr. Peterson stated that "it is true that it [a tagged distribution lot of smokeless powder] could be going to 20,000 different destinations for buyers". Hearings Before the Subcommittee on Aviation of the House Committee on Public Works and Transportation, 95th Cong., 2d Sess. 159 (1978) [hereinafter referred to as "Aviation Subcommittee Hearings"].

2/ Aviation Subcommittee Hearings at 159.

3/ Aviation Subcommittee Hearings at 142.

These sophisticated criminals could easily remove taggants from smokeless powder with the aid of a magnet, a black light and a pair of tweezers. Alternatively, they could construct bombs using different smokeless powders obtained in different locales or regions of the country by different persons. Finally, terrorists could easily disassemble factory-made ammunition and obtain the same types of smokeless powder found in canisters. It would be totally infeasible to include this smokeless powder within any tagging program. Through actions such as these terrorists could easily eliminate any utility that the tagging program may have for federal investigators.

It is particularly difficult to conceive of benefits from identification tagging in light of two elements of the factual situation surrounding past terrorist bombings; factual elements established in the testimony of Senators Ribicoff and Javits before the Subcommittee on Aviation of the House Public Works Committee in July 1978, in the February 3, 1978 Report of the Subcommittee on Criminal Laws and Procedures of the Senate Judiciary Committee, "Control of Explosives", and in the testimony before the Subcommittee on Aviation of Glen D. King, Executive Director of the International Association of Chiefs of Police. First, as stated by Senators Ribicoff and Javits, "the widespread criminal and terrorist misuse of explosives occurs frequently as a result of thefts".[1/] A tagging program operating at optimum efficiencey will only lead investigators to thousands of last

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1/ Aviation Subcommittee Hearings at 68.

legal purchasers. Second, terrorists often brag about the bombings for which they are responsible. The need for a massive new regulatory program designed to produce a list of 10,000 to 20,000 or more innocent purchasers of smokeless powder used in a bomb is reduced, if not eliminated, where the field of suspects is narrowed significantly by the guilty parties' own declarations.

Apparently the members of the smokeless powder industry are not alone in their inability to foresee tangible benefits form the use of identification taggants. Neither ATF, Aerospace, nor the International Association of Chiefs of Police have provided a specific explanation of the aid to law enforcement personnel from adding identification taggants to smokeless powder. In addition, the scenarios for benefit to law enforcement personnel from tagging set forth in the cost-benefit study prepared for ATF by Management Sciences Associates are totally inapplicable to smokeless powder. Quite frankly, it appears that the possibility of adding identification taggants to smokeless powder has been raised only because the idea sounds attractive when considered superficially. Its appeal is lost upon evaluation of the realities of the distribution system for smokeless powder.

III. RESEARCH ON THE SAFETY OF IDENTIFICATION TAGGANTS

Representatives of SAAMI and its member companies met with Aerospace in January 1978, to discuss the feasibility of adding identification taggants to smokeless powder sold in canisters for handloading and to develop a testing program which might demonstrate the infeasibility of tagging due to adverse effects upon the tech-

nical operation of firearms, but would only indicate its feasibility.

Aerospace and SAAMI agreed that a great many ballistics characteristics could be influenced by the presence of taggants in smokeless powder and that the effects of taggants could vary by types of powder. To develop a testing program which could be conducted within a reasonable period of time, it was agreed that the initial testing should be limited. The program was aimed at detecting those adverse effects from the presence of taggants in powder which, on the basis of the limited information now available, are judged to be the most likely to occur and to be the most deleterious to proper and safe operation of firearms. The test program, therefore, focuses on fouling of shotguns and centerfire rifles, and ignition of ammunition for centerfire pistols and revolvers. From over 50 different smokeless powders available to the handloader, only 9 powders were selected for evaluation in this first step test program. To evaluate the possible impact on safe operation of firearms, pressure, velocity and in-barrel-time uniformity will be measured for each test firearm.

The initial test program requires that a total of 249,000 rounds of ammunition be loaded with smokeless powder containing taggants and fired in 7 different types of firearms. Olin Corporation (Winchester-Western Division) and Remington Arms Co., Inc. are in the course of preparing contracts with Aerospace Corporation to participate in the test program. The test program will be conducted and completed in approximately 18-to-36 months. 1/

1/ A detailed explanation of the testing program is set forth in the minutes of the January 19 meeting, which is attached hereto as Exhibit C.

At Aerospace's direction, testing will not begin until the smokeless powder producers complete preliminary tests aimed at determining whether tagged powder can be shipped or stored without the taggants becoming stratified.

The initial test program is not designed to establish the technological feasibility of taggants insofar as its effect on on firearms is concerned, although the infeasibility of taggants due to adverse effects on firearms may be demonstrated. Further testing would be required to demonstrate the technological feasibility of taggants. SAAMI members that produce smokeless powder are concerned about any change in the ingredient mix of a powder which they consider as resulting in the production of a new powder Extensive testing is conducted prior to the market introduction of a new powder to ensure safety and protect against product liability claims. In addition, there are thousands of handloading "recipes" published by SAAMI members and other handloading authorities. The SAAMI members' recipes have been documented for safety prior to their publication, but all of these recipes may be changed by the addition of taggants. The testing and documentation necessary to establish the safety of these altered recipes also would be extensive.

The prospect of considerable product liability claims arising from the mandated addition of taggants to smokeless powder is underscored by the refusal of the sole producer of the taggants to assume any liability arising from their use:

> "3M's only obligation shall be to replace such quantity of the product proved to be defective. 3M shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use or the inability to use the product.

> Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith." 3M Price List for Microtaggant Identifying Particles (attached as Exhibit E).

In addition, the Treasury opposes the Government's assumption of any liability relating to taggants on the spurious grounds that ATF would thereby be a "bureaucratic intruder in the marketplace".[1/] ATF is intruding into the marketplace by advocating the addition of taggants to smokeless powder but refuses to take responsibility for its actions.

IV. ADDING IDENTIFICATION TAGGANTS TO SMOKELESS POWDER

A. Manufacturing Process

Understanding the effects upon smokeless powder manufacturing which would result from requiring the addition of identification taggants requires some knowledge of the significant elements of the manufacturing process.

Step 1. The component materials for smokeless propellants are measured and physically mixed to give a desired composition. The components are nitrocellulose (nitrated cotton or wood fibers), solvent, nitroglycerine (used in double-base powder), stabilizers and burning rate control agents.

Step 2. The mix is granulated, with both the size and shape of the grain carefully controlled and varying by type of powder.

Step 3. The solvent is removed. (The only function

1/ Aviation Subcommittee Hearings at 139.

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of the solvent is to dissolve the nitrocellulose to facilitate mixing and granulation.)

Step 4. The material is screened to remove fine particles and particles that may have been malformed or which adhered to other particles.

Step 5. The grains are coated with ballistic control agents to ensure a proper burning rate and to act as antifouling and antiflash agents.

Step 6. The grains are dried.

Step 7. The powder is tested for ballistic characteristics. The powder is now considered a preliminary powder or blending stock powder. Some or all of a preliminary powder may be rejected and recycled for reworking through earlier process steps to modify its ballistic characteristics.

Step 8. The powder is glazed with a graphite coating. The coating eliminates static charge build-up which presents a fire hazard due to the possibility of a spark being generated.

Step 9. The powder is subjected to quality assurance tests to ensure proper physical, chemical and ballistic properties. If specifications are not met, the powder must be reworked.

Step 10. The powder is passed through a screen to remove chips, dust and other impurities.

Step 11. The powder is blended with other powders of known characteristics to obtain a particular powder type.

Step 12. The powder is passed through a screen to remove chips, dust and other impurities.

Step 13. The powder is tested to determine if quality

assurance and ballistic specifications are met. If such specifications are not met, the powder must be reblended or reworked.

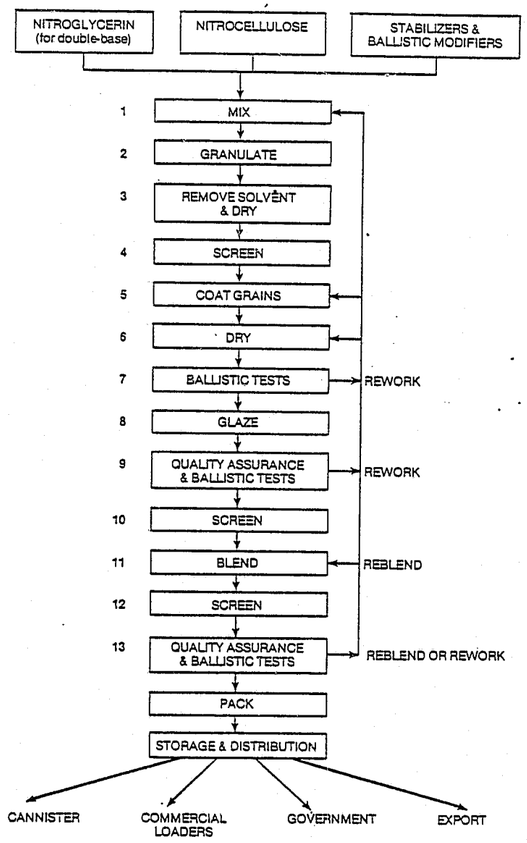
The schematic drawing on the following page illustrates these steps in the manufacturing process for smokeless powder.

B. Point At Which Taggants Could Be Added

For several reasons the only possible point in the normal manufacturing process for the introduction of taggants into the powder is Step 11, the blending operation. First, there would be an extreme hazard of explosion if taggants containing a metallic substance were introduced into the process prior to Step 6, drying. Second, all machinery through which the powder with taggants passes will be contaminated with the particular taggant. To avoid this contamination, and the resultant mix of taggants, the taggants should be added as late in the process as possible. Third, if taggants were added at an earlier point and a powder failed to meet the quality assurance or ballistic specifications tested at Step 9 of the process, it would not be possible to recycle or rework the powder. Upon recycling, the powder would be mixed with powders which were intended to receive different taggants. Fourth, the size of a lot of powder tagged with a particular taggant could best be limited if taggants were added at Step 11.

There are major manufacturing problems with adding taggants during the blending operation. The blending operation is the most crucial step in the process for meeting product performance specifications. The characteristics of smokeless powder are very carefully controlled for the purpose of allowing the handloader

SMOKELESS POWDER PROCESS STEPS



to achieve precisely the same ballistic results time-and-time again for like powder types purchased at different times.

1. Reblending and Reworking Powders

Quite often a powder must be reblended to produce an acceptable final blend. In such a case reblending could result in a mixture of different taggants.

It is not feasible to plan production in such a way to ensure that a rejected powder can be reblended with a powder containing only identical taggants. Reblending will require lots with specific properties that are compatible with the characteristics of the powder to be reblended. Those lots may have been produced, blended and tagged many months earlier.

Complete or partial reworking of powder upon its failure to meet the Step 13 tests for quality assurance and ballistic characteristics is not unusual. Reworking of rejected powder from different blend lots, often a necessity, would result in a mixture of taggants. Further, reworking tagged powder through the early process steps would raise the same safety and taggant segregation problems as an original addition of taggants at those steps.

If reblending and reworking of tagged powders were not possible, many thousands of pounds of tagged smokeless powder might have to be destroyed annually. The problem could be alleviated if there were a quick and efficient method for removing the taggants from the powder. However, unless this method were a secret process or device which could not be easily duplicated, terrorists also could easily remove the taggants.

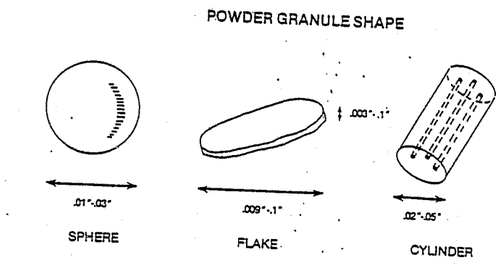
Assuming a method of removing taggants during manufacturing were found, manufacturing costs and prices likely would be increased significantly. A production lot of powder typically varies between 10,000 to 20,000 lbs., and ranges from 5,000 to 50,000 lbs. This is a sizeable amount of material to handle and process for any purpose.

2. Screening and Stratifying of Powders

The necessary variation in the size and shape of smokeless powder grains results in a serious obstacle to identification tagging. Smokeless propellant powder is used to power well over 1,000 different rifle, pistol and shotgun loads. The required burning characteristics to give proper velocity to the projectile(s) and stay within specified standard pressure levels is controlled by the physical size and shape of the grain, the chemical composition and the surface coatings. Thus, grain size or shape must be precise within a particular production lot of powder, and must be precise from lot to lot for a particular powder type.

There are approximately 30 different sizes or shapes of powder grains. Powder grains may be spheres, flakes, or perforated cylinders. The spheres can vary in diameter from about 1/100 to 3/100 of an inch. The flakes can vary in diameter from about 9/1000 to 1/10 of an inch. The thickness of flakes varies from 3/1000 to 1/10 of an inch. The cylinders are most always perforated, with one to seven perforations. The cylinder diameter ranges from 2/100 to 5/100 of an inch for powder used in small arms, but can be one inch or more for artillery ammunition. The length is

usually three or four times the diameter. Apart from shapes or sizes, there are approximately eight different specified bulk



densities for powder grains. The densities range from 0.45 to 1.2 gm/cc.

For some powder types, screening of the blended powder, Step 12 of the manufacturing process, would remove any taggants not of the same size or shape as the powder. To prevent removal of taggants by screening, by vibration settling, or by pouring the powder through an airstream, the taggant must be a good match to the size and density of the powder. The total number of combinations formed by the different shapes, sizes and bulk densities would be approximately 200. To adequately match these powders could require as many as sixty to seventy different taggants.

Apart from inviting removal by a terrorist, failure to

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produce the necessary variety of taggants could result in the use of taggants which are not suitable to the present manufacturing process or which stratify in cannisters during shipping and storage. Stratification of taggants could allow use of powder thought to be tagged without taggants actually being in the powder placed in a particular bomb. Also, a handloader could suffer a misfire, and possibly a blown-up firearm, by using powder with an extraordinary concentration of taggants.

3. Unknown Hazards

It is not possible at this point in time to assess other hazards or problems which may be created by the introduction of taggants into the blending and packing operations. An an example, airveying (conveying with moving air through tubing) is commonly utilized in packing powder. It simply is not known whether taggant materials would create hazards, such as hot spots, when moving through this type of system.

C. Source of Taggants

The only source of identification taggants is currently the 3M Company ("3M"). It should be immediately recognized that 3M would hold a monopoly position over the supply of taggants. Although no person would be legally barred from competing with 3M, the practical barriers to entry into the market would be enormous due to the testing necessary before a producer of smokeless powder would consider using the taggant.

The presence of a monopolistic supplier of a product which the law would require smokeless powder manufacturers to

purchase and incorporate into their product creates numerous problems. Any serious disruption to the supply of taggants -- due, for example, to a strike of 3M workers -- could result in a disruption of corresponding length in the manufacture of smokeless powder. Of equal significance, the price charged for the taggants may be exorbitant. The expense of producing the taggants for smokeless powder may be high due to the necessity of producing so many different sizes with different bulk densities. Market control by a single producer might well substantially increase that price.

V. COSTS

A. Recordkeeping

1. Manufacturers

The burden of maintaining a recordkeeping system sufficient to allow law enforcement personnel to trace a lot of tagged powder would fall most heavily upon distributors, jobbers and retailers of smokeless powder. A manufacturer only deals with its own powder. A majority of master distributors and most jobbers and retailers purchase and sell more than one manufacturer's powder. The manufacturers have automated recordkeeping systems. A large majority of distributors and most jobbers and retailers do not.

The precise cost of recordkeeping for a particular manufacturer to allow tracing of tagged lot of powder would depend upon the information currently placed in the manufacturer's recordkeeping system. We have estimated that the recordkeeping cost

for the manufacturers would be between $.05 and $.10 per pound of powder.

2. Distributors and Wholesalers or Jobbers

Mr. Robert Hodgdon's testimony before the Subcommittee on Crminal Laws and Procedures of the Senate Judiciary Committee concerning the recordkeeping costs and other problems presented to distributors and wholesalers of smokeless powder from the proposed taggant program is attached hereto as Exhibit D.

3. Retailers

For retailers major changes and additions to records and procedures would be necessary. The taggant identification numbers on the product would have to be checked against the shipping documents. Record books would have to be orgainzed or cross-indexed by taggant numbers and powder types, rather than simply by powder types. In turn, incoming powder would have to be inventoried by both taggant numbers and powder types. Finally, powders would have to be grouped in storage by taggant number and powder type, rather than by type alone. Storage space for powders will necessarily increase because there likely will be numerous taggant numbers for each type of powder, and powders must be stored in such a way that taggant numbers are visible for inventory checking.

Upon selling powder the clerk would need to locate the proper powder type and taggant number page or section in the record book. This sequence would be repeated for each different

powder type purchased and for each differently tagged canister within a particular powder type.

The time to execute periodic record checks and inventories would be increased by the need to identify powders by taggant numbers. Each time ATF would request the names of all purchasers of powder with a particular taggant, the clerk would conduct a search of the records and provide the names and addresses of purchasers.

The retail dealers have been unable to provide an exact cost figure for recordkeeping. However, in light of the numerous additions and changes to their current procedures, the cost could be significant.

B. Taggants

Until recently SAAMI accepted representations by Aerospace BATF and 3M Company that the cost of identification taggants would be only a few cents per pound of smokeless powder. (SAAMI members have not purchased taggants directly from 3M.) Aerospace provided the taggants needed for testing. For several reasons SAAMI now questions these representations.

3M recently published a price list for taggants, together with materials promoting their use as identifying agents in such diverse products as explosives, plastics, animal and poultry feeds, rubber, oil and chemicals. (The price list and promotional materials are attached hereto as Exhibit E.) Under this price list the producers of smokeless powder would have to pay initially $200 per pound of taggants. This is only an initial cost because, in order to reserve the code represented by the taggants, producers

would have to pay each year a $100 renewal fee per code.

BATF recently presented to this Committee a letter from 3M reaffirming 3M's original estimate that taggants for explosives will cost only $25 - $40 per pound due to economies of scale which will be achievable with a full production facility. Assuming that the costs of producing taggants can be reduced to the extent necessary for this 95-to-96% reduction in price (including code reservation fees for five years), it appears quite naive to believe that 3M will pass these savings along to producers of explosives. The Federal antitrust laws certainly reflect the belief that a monopolist will not act so benevolently, and 3M will be a monopolist whose product the law will require explosives manufacturers to purchase.

In addition, 3M currently produces only one type taggant. The cost of producing taggants will likely increase significantly when 3M attempts to produce taggants to match the numerous grain size and shapes and densities of smokeless powder. Neither 3M or Aerospace has ever addressed this point which SAAMI has consistently raised in testimony before Congress over the last year.

Based upon the current 3M price list, the initial cost per pound of taggants results in either a $.10 or $.20 cost per pound of tagged powder, depending upon whether the concentration of taggants required is .05 or .1 percent. The ballistics tests which Aerospace have requested SAAMI members to undertake require the use of powders with concentrations of taggants at both levels.

The cost of reserving the code for the taggants would depend upon the number of years Treasury would require reserving.

Smokeless powders have virtually a limitless shelf life, but to be conservative assume Treasury would require that the code be reserved for only five years after the year of purchase. The cost of reserving the code for powder would be either $.25 or $.50 per pound of powder, again depending upon the concentration level of taggants.

In short, the cost of taggants, once thought to be minimal, could be substantial. At current prices the cost of taggants alone would raise the cost of a pound of powder by $.35-to-$.70, or 5-to-10 percent, conservatively assuming that Treasury would require codes to be reserved for only five years. In fact, Treasury will likely require the reservation of codes for longer than five years.

[NOTE.—The exhibits to the statement of Mr. Turner are retained in the committee files.]

[Whereupon, at 12:05 p.m., the committee was recessed, to reconvene subject to the call of the Chair.]

APPENDIX

Aerospace Report No.
ATR-78(3860-02)1 ND

COMPATIBILITY OF IDENTIFICATION
TAGGANTS WITH EXPLOSIVES

August 1978

Prepared for
Bureau of Alcohol, Tobacco and Firearms
DEPARTMENT OF THE TREASURY

Prepared by
Explosives Control and Forensics Directorate
Eastern Technical Division
THE AEROSPACE CORPORATION

Report No.
ATR-78(3860-02)1 ND

COMPATIBILITY OF IDENTIFICATION
TAGGANTS WITH EXPLOSIVES

Prepared by

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Explosives Control and
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Robert B. Moler
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Joseph Meltzer
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ABSTRACT

This is a compendium of all the data that have been obtained on this subject together with interpretations of the data. The tests have always shown that the 3M Company taggants currently being used in explosives do not increase the hazards of processing or handling high explosives. This holds true whether the taggants are used in their unencapsulated or encapsulated form. Those taggants also have shown no adverse effect on performance of the explosives or their aging properties. Data on the compatibility of various other types of taggants are also discussed.

CONTENTS

[NOTE.—The appendix is retained in the committee files.]

I. INTRODUCTION

Explosives identification tagging refers to the addition of tiny coded particles to explosives during their manufacture that can survive detonation, be recovered and decoded, and, through distribution records, allow the explosives to be traced back to the last legal possessor. These taggants are incorporated in quantities of 0.05% to 0.1% by the explosives manufacturers into their formulations. This report summarizes and evaluates compatibility data on tagged explosives which have been obtained to date.

Various identification taggants have been proposed for use and have been or are being evaluated. All the data obtained are included here, even though the particular type of taggant may, on the basis of the compatibility data, no longer be considered for use. The only identification taggant now in use in the national pilot test (a program in which millions of pounds of tagged commercial explosives are being manufactured and distributed normally) is the 3M Company Type C taggant described below.

THE 3M TAGGANTS

The regular 3M taggant consists of a laminated melamine-alkyd core encapsulated in polyethylene wax. The core is color-coded by the inclusion of various pigments. One of the layers normally includes iron particles to make the taggant magnet-sensitive, and one or both exterior layers include one of three fluorescers which respond to UV irradiation. The normal taggant core (unencapsulated) is called a Type A taggant. A Type B taggant (unencapsulated), consisting of a more highly cross-linked melamine-acrylic, was tested in the early stages of taggant development, but this "hard" taggant sensitized explosives while the Type A "soft" taggant did not. The Type A core encapsulated with polyethylene wax is called Type C. When Type C is evaluated for use in specific explosives, both Type A and Type C are often subjected to compatibility tests because of the possibilities of inadvertent omission of polyethylene coating from the Type C or of removal of the polyethylene coating at some stage in the processing of explosives. The test data on Type A and Type C have always shown that these taggants do not increase the hazards of explosives processing or handling.

OTHER TAGGANTS

Other experimental cores and encapsulating materials have also been evaluated for 3M. These involve replacing the Type A core by a special hard core and/or using high-melting resins for encapsulation.

A Westinghouse taggant consisting of a polyethylene-encapsulated gritty particle containing rare-earth compounds and an alkali silicate binder, as well as a fluorescent additive and a magnet-sensitive additive has been evaluated. Ferrite taggants, whose code lies in the effect of temperature on magnetic properties and which are in a binder similar to that of the Westinghouse taggant, have been encapsulated in gelatin by an NCR process and evaluated.

In addition, the effect of irradiating 3M Types A and C with a cobalt-60 source, which increases cross-linking of core and encapsulant polymers, has been evaluated.

II. COMPATIBILITY TESTING

The test methods used for compatibility evaluations (sensitivity, thermal stability, aging, and performance) are those used in the explosives industry, although there is a general lack of standardization among manufacturers as to test procedures, apparatus, and interpretation. In general, each manufacturer will want to satisfy himself, by test procedures he selects, that a proposed additive (i.e., taggant) is compatible with his process.

The sensitivity and stability tests generally compare the response of explosives (with and without taggant) to the impact of a falling weight, to a sliding frictional type impact, to electrostatic discharge, and to various thermal inputs. A positive response to electrical or mechanical energy input may be defined as any evidence of reaction or as a defined extent of reaction, e.g., explosion. Test results may be reported as the energy level necessary to give positive responses 50% of the time or as the energy level which will give a single positive response in 10, 20, or more trials (Threshold Initiation Level = TIL).

Thermal tests may consist of determining:

(1) At what temperature exotherms occur, i.e., differential thermal analysis (DTA) or differential scanning calorimetry (DSC);

(2) The rate of gas evolution at a given temperature, e.g., Taliani or vacuum stability tests;

(3) The time required for a color reaction (e.g., Abel test) which indicates the presence of nitrogen oxide gases, which are decomposition products in those explosives containing nitrate esters, e.g., dynamites but not most aqueous gelled slurries; and

(4) The time required for explosion.

Tests of performance ensure that the explosive containing taggant functions as well as the same explosive without taggant.

III. SENSITIVITY AND STABILITY DATA WITH 3M TAGGANTS

Compatibility of taggants was measured with a number of different types of commercial explosives: dynamites, gelled aqueous slurries (usually called slurries or water gels, depending on the manufacturer's preference), cast boosters, and black powder. The sensitivity and stability data obtained for the 3M Types A, B, and C taggants are tabulated in the Appendix as follows:

Table A-1 - Compatibility of Type A Taggant

(a) With dynamites (and their ingredients)
(b) With aqueous gelled slurry explosives (and their ingredients)
(c) With cast boosters (and their ingredients)
(d) With black powder

Table A-2 - Compatibility of Type B Taggant

(a) With cast boosters (and their ingredients)
(b) With dynamites (and their ingredients)
(c) With black powder

Table A-3 - Compatibility of Type C Taggant

(a) With dynamites (and their ingredients)
(b) With aqueous gelled slurry explosives (and their ingredients)
(c) With cast boosters

The tables compare directly various explosives with and without taggant added, subjected to a variety of tests of sensitivity and stability and performed by a number of different organizations. Despite attempts at elegance in reporting test results by some of the organizations, e.g., the computation of energy values in drop weight tests and the computation of force values in friction tests, the absolute values have no significance here; only the relative values of tagged versus untagged explosives are relevant. It is obvious that there are instances of sensitization by the obsolete Type B taggant but not one case of sensitization or unstabilization in the numerous tests of Type A and Type C taggants.

IV. OTHER PROPERTIES OF THE 3M TAGGANTS

In addition to those tests of possible interactions of taggants with explosives, Hercules considered it desirable to characterize the electrical properties of the Type C taggants because the taggants are electrically insulated by plastic coatings. Tests of static electrical charge generation and dissipation and of the response of taggants to an electrostatic discharge were carried out at Hercules ABL.

In the charge generation test, taggants were poured through an angled, grounded, stainless steel chute into a container of measured capacitance; the voltage of this container was measured with an electrostatic voltmeter. Three such tests were carried out, giving an average value of 88×10^{-12} coulombs/gram from three trials with individual results of 144×10^{-12}, 90×10^{-12}, and 29×10^{-12} coulombs/gram. From this result, Hercules concluded that, because of the small amount of taggants that would be added to the mixer and the small charge that develops, these should be no problem during addition. It may also be concluded, from the deviations between test results, that this measurement is not one of high precision.

Relaxation time for dissipation of an electrostatic charge was calculated by Hercules from their measurements of dielectric constant and conductivity of the taggants. The relaxation time was found to be 900 sec. For comparison, the aluminum powder which Hercules incorporates in one of its gelled aqueous slurry explosives was found to have a relaxation time of 820 seconds. Thus, the taggant properties in this regard are quite similar to those of a standard ingredient of explosives.

From their tests of response to an electrostatic discharge, Hercules found the "Threshold Initiation Level" (TIL) of taggants to be 0.5 joule. Interestingly, the TiL for electrostatic discharge tests for Hercules dynamites ranged from 0.024 joules to 0.075 joules, with no differences between tagged and untagged dynamites; the TIL for a Hercules aqueous gelled slurry was 1.26 joules, also with no difference between tagged and untagged. However, the fact that the taggant alone has a value intermediate, in this test, between these two types of explosives should not lead one to conclude that Type C taggants are explosives. Instead, one may suspect that some of the surface polyethylene wax is degraded by the electrostatic discharge, and small gaseous molecules are produced. These molecules are detected by the sensitive instrumentation used in this test as carried out at Hercules ABL, and the result is considered an initiation. In short, this test is meaningless when applied to taggants alone.

V. AGING AND PERFORMANCE OF TAGGED EXPLOSIVES

Aging of explosives is accompanied by changes in composition and structure. Typical changes are loss of volatile explosive components, chemical deterioration, and loss of porous gel structure. With dynamites, exudation of the explosive oil (NG/EGDN) or its volatilization and condensation on the exterior may lead to a hazardous situation because the explosive oil then exists there without its desensitizers (e.g., wood pulp). Chemical degradation also could lead to spontaneous combustion and explosion. However, the major problem in aging of commercial explosives (including dynamites) is in changes which result in failure to initiate to detonation properly. In such circumstances, initiation of nominally cap-sensitive explosives by a blasting cap results in no reaction or partial reaction. (The same phenomenon can occur with fresh explosives which are not made properly).

To make sure that taggants had no adverse effect on aging properties of explosives, aging studies have been included when tagged explosives were manufactured. Accelerated aging was utilized to speed up the processes. A general rule in decomposition of explosives is that the rate doubles for each 10°F. Thus, storage at 90°F for a given length of time is equal to 4 times that storage at 70°F, and storage at 110°F is equal to 16 times storage at 70°F.

Atlas dynamites, Atlas emulsion explosives, and Hercules and duPont gelled aqueous slurries have been tested. No deleterious effect of 3M or Westinghouse taggants on aging and performance has been found.

The Hercules slurries contained 0.05% each of both 3M Type C and Westinghouse taggants. They were tested by firing $1\frac{1}{4}$- x 14-in. sticks after one, two, and four months aging at 110°F. Three shots were done after each aging period. After four months at 110°F, one of the shots failed to propagate for the last 3 inches of the slurry charge. Four months at 110°F is a rather severe storage condition for a slurry.

DuPont made laboratory mixes of Tovex® 700, 800, and 320 water gels, comparing untagged and tagged (with double the normal amount of 3M Type C and Westinghouse tags) explosive with respect to initiation sensitivity and detonation velocity under standard test conditions. There was no significant difference in the performance of products with and without tags. Also, cartridged samples of the products were placed in storage at 100 and 120°F. There was no observable difference in the quality of the gels as made or in gel quality during storage for a period of six months.

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Atlas conducted a 4-month, 110°F, accelerated aging study of dynamites tagged with a combination of 0.05% each of 3M Type C and Westinghouse taggants. They concluded that the three dynamites, representing a full range of energy levels, were stable at the end of this period. The typical deterioration of dynamites stored at 110°F is shown in Table A-4. A typical loss of liquid explosive, EGDN, amounting to 12 to 16% of the amount initially present was found after 3 months storage at 110°F.

Atlas also prepared special sensitized emulsion explosives tagged with a combination of 0.05% each of 3M Type C and Westinghouse taggants. These were stored at ambient temperature and at 90°F, along with a control of the same explosive untagged. The effect of aging of the explosives on their ability to be initiated to detonation at low temperatures by a #6 electric blasting cap was measured. The effect of aging on detonation velocity of the explosives was also measured. The data are shown in Table A-5. From the data, it appears that the tagged explosives withstand aging better than the untagged explosives. There is no known reason for this; possibly there was some defect in the control explosive. However, Atlas' conclusion that it is obvious that the taggants have no deleterious effect upon the emulsion explosive cannot be argued.

VI. SENSITIVITY AND STABILITY DATA

WESTINGHOUSE TAGGANTS

Compatibility of taggants was measured with dynamites, gelled aqueous slurries, and cast boosters. The data are shown in Table A-6. It is obvious that the encapsulated Westinghouse taggant (in which the polyethylene encapsulant is 4 to 5 times the weight of the taggant core) shows no instances of sensitization or unstabilization of explosives. However, the unencapsulated Westinghouse taggant is shown to sensitize explosives; this is exactly what would be expected from its physical properties.

OTHER TAGGANTS

The data on compatibility of the magnetic (ferrite) taggant is presented in Table A-7. The vacuum stability tests provide evidence of interaction between this taggant and a typical booster explosive, but the degree of interaction shown is considered acceptable in explosives specifications. The response to mechanical energy inputs shows that the unencapsulated ferrite taggant effectively sensitizes explosives, as would be expected from its physical properties. There is also evidence of sensitization by the encapsulated ferrite taggant. This indicates that the thin NCR gelatin encapsulant is not adequate to protect the explosive from the hard ferrite taggant core.

Tables A-8 and 9 show the compatibility data on irradiated Types A and C taggants, respectively. There is some evidence that irradiation of the Type A taggant causes sufficient hardening (by cross-linking) to result in sensitization of explosives by this irradiated taggant. There is no evidence, in the few tests performed, of this occurring with the Type C taggant.

Tables A-10 and 11 show the compatibility data on some 3M experimental taggant cores and encapsulating materials. The polyethylene wax encapsulant appears effective in preventing sensitization of explosives by the special hard core taggant. The high-melting resin encapsulants are apparently too hard; they give taggants which sensitize explosives.

SOURCES OF DATA

Dupont, "Pilot Test - Aerospace Order 67885," Progress Report, June 1978.

Hercules, "Follow-on Testing of Explosive Tagging," Report No. AD8413-520-03-003, May 1978.

Data on 3M Taggants

Lawrence Livermore Laboratory, "Feasibility and Test of Coded Taggant Materials for the Identification of Explosives -- Final Report," Report UCRL-51757, February 1975.

Data on Westinghouse Taggant:

a. Bureau of Mines impact, friction, and sliding rod tests on 85% gelatin dynamite, gelatinous permissible dynamite, permissible water gel, PETN, RDX, Pentolite, Comp B, TNT, and NG/EGDN;

b. LLL impact, DTA, and chemical reactivity tests on dynamites;

c. Apache impact and heat tests on dynamites.

Letter, W. E. Brown (Naval Ordnance Station) to D. J. Edwards (The Aerospace Corporation), "Vacuum Stability Tests," June 26, 1978.

Letters, R. C. Glatz (Atlas) to S. Derda (The Aerospace Corporation), "Encapsulated Taggant - Explosive Liquid Compatibility," November, 3 and 8, 1978.

Letters, R. C. Glatz (Atlas) to R. B. Moler (The Aerospace Corporation), "Stability of Special Order Dynamites," April 26 and June 7, 1977.

Letter with Enclosure, Harry E. May (Hercules) to W. W. McIntire (The Aerospace Corporation), May 4, 1977: Internal Report, "Data on Compatibility of Westinghouse and 3M Taggants (combined) with Aqueous Gelled Slurry Explosives," February 4, 1977.

Letter, R. G. Nelson (Atlas) to S. Derda (The Aerospace Corporation), "Drop Weight and Sliding Rod Tests on Taggants," April 13, 1978.

Letter, R. A. Story (Atlas) to C. Boyars (The Aerospace Corporation), "Testing of Tagged Emulsion Explosives," May 18, 1978.

Letter, R. W. Watson (Bureau of Mines) to C. Boyars (The Aerospace Corporation), "Sensitivity Evaluations for Several Explosives Seeded with Uncoated Taggants," October 6, 1977.

Letter, R. W. Watson (Bureau of Mines) to R. B. Moler (The Aerospace Corporation), "Sensitivity of Black Powder Seeded with Several Uncoated Taggants," August 17, 1977.

Phone, P. Barnhard (Trojan) to C. Boyars (The Aerospace Corporation), "Booster Explosive Sensitivity," May 11, 1977 and December 20, 1977.

Phone, R. G. Nelson (Atlas) to C. Boyars (The Aerospace Corporation), "Irradiated 3M Taggants," June 15, 1978.

HERCULES INCORPORATED
ALLEGANY BALLISTICS LABORATORY
CUMBERLAND, MARYLAND

PRELIMINARY HAZARDS ANALYSIS OF EXPLOSIVE TAGGING

T. A. GROCE

JANUARY 1978

PREPARED FOR

THE AEROSPACE CORPORATION
WASHINGTON, D.C.

REPORT NO. A08413-520-03-002

HERC NO. 78-9

DISCUSSION

Analysis Methodology

Hercules Incorporated, Allegany Ballistics Laboratory has developed Hazards Evaluation and Risk Control (HERC) as a systems engineering approach to a quantitative evaluation of hazards present in processes involving combustible materials. Briefly, HERC is a multi-step program which (1) identifies potential hazards in a facility, (2) quantifies these hazards in engineering terms, (3) ranks these hazards according to the likelihood of causing a fire or explosion, and (4) provides design and operating criteria which should reduce any unacceptably high risks. The HERC technique was discussed in more detail in the proposal (W-7752) for the current work and will not be repeated here. Only the first step of the HERC program, the PHA, was involved in this work.

Preliminary Hazard Analysis

A preliminary hazards analysis was conducted on both the tagging of slurry explosive and the tagging of dynamite to identify potential hazards associated with these operations (see Figure 1).

Tagging Slurry Explosives - The facilities that will be involved in the tagging of slurry explosives were inspected at the Hercules plant at Bessemer, Alabama. The taggants would be added as the final ingredient at the final mixing operation. Therefore, the processes and equipment that are subject to analysis are (1) final mixing (agitated mix tank), (2) slurry transfer operation (positive displacement pump), and (3) packing (cartridge pack machine). As mentioned previously, a basic ground rule was that the analysis be limited to those manufacturing operations where the taggants are in contact with the explosives. Although there is a variety of slurry explosives that are made by Hercules and that could contain taggants, the three operations to be analyzed are very similar for all explosives and the same equipment is used.

CONCLUSIONS AND RECOMMENDATIONS

The results of the PHA conducted under this contract show that there are a number of potential hazards associated with the operations and equipment that will be used for tagging slurry explosive and tagging dynamite. However, what is not known is if these potential hazards are any greater with the presence of taggants in the slurry explosive or dynamite. It is recommended that tests, as specified in this report, be conducted on representative slurry explosives and dynamites to determine if the presence of taggants affects explosive sensitivity. It is also recommended that if the presence of tags, increases sensitivity, then the hazards analysis of the explosive tagging operations should be quantified and completed.

HERCULES INCORPORATED
ALLEGANY BALLISTICS LABORATORY
CUMBERLAND, MARYLAND

FOLLOW-ON TESTING OF EXPLOSIVE TAGGING

T. A. GROCE

MAY 1978

PREPARED FOR

THE AEROSPACE CORPORATION
WASHINGTON, D.C.

REPORT NO. AO8413-520-03-003

HERC NO. 78-55

SUMMARY

OBJECTIVES

The objectives of this program are: (1) to conduct material response tests on certain explosives and explosives which contain taggants, and (2) to determine if the presence of taggants has an effect on the sensitivity of these explosives.

RESULTS AND CONCLUSIONS

Results from impact, friction, ESD, and DSC tests of Gel Power A-2 slurry explosive and various dynamites (Vibrogel, Unigel, Gelatin Extra 60%, and Red HA) indicate that the presence of taggants (encapsulated, combined "first-article" 3M tags) do not adversely affect the sensitivity of these explosives. Tests were conducted on samples of the explosives, both with and without tags. Of the 15 sets of comparative data, all five electrostatic discharge (ESD), two of five impact, and two of five friction threshold of initiation levels (TIL's) were identical. Of the six sets, where there were differences, three sets (two impact and one friction) indicated that the explosive with tags was more sensitive, and three sets (two friction and one impact) were less sensitive. The presence of tags did not reduce the temperature at which exotherms were recorded on DSC test traces. Special electrical properties tests with the tags indicate that a charge can be generated and stored on the tags. However, because of the small charge, and the small quantity of taggants used per mix, there should be no significant hazard during the addition of the taggants.

To determine how explosive sensitivity would be affected if the plastic coating on the tags were absent, impact and friction tests were performed on the explosives containing unencapsulated tags. Impact results show no significant difference in sensitivity when unencapsulated tags were in the explosive as opposed to coated tags. With two of the five explosives, Red HA and Tamptite, there were significantly lower friction TIL's when unencapsulated taggants were present; and for one explosive, Vibrogel, the friction TIL was significantly higher. For the remaining two explosives, Gel Power A-2 and Unigel, the friction TIL was between that obtained for explosives tested alone and the explosive plus encapsulated taggants.

Based upon the results of this program, it is concluded that the presence of 3M encapsulated taggants represented by the "combined first article" taggants furnished by Aerospace Corporation does not significantly increase the sensitivity or the manufacturing hazard level for producing slurry explosive or dynamite.

DISCUSSION

Table I shows a summary of the material response test results; Table II lists all impact, friction, and ESD data generated under this program; Tables III and IV show DSC and electrical properties test results.

Materials Tested

For the purpose of determining the effect of taggants on the sensitivity of explosives, it was not possible to test all of the explosives manufactured by Hercules Incorporated. Data were available to indicate that Gel Power A-2 is sufficiently representative, so that this was the only slurry explosive tested. Four dynamites were selected which represented the wide range of strengths available, Unigel, 60% Extra Gelatin, Red HA, and Vibrogel. In addition, tests were also conducted to determine any effect the tags might have on the sensitivity of nitroglycerin.

Impact Tests

ABL uses a modified Bureau of Mines test apparatus to determine the susceptibility of the explosives to initiation by impact. The ABL machine is designed to deliver controlled energy from a falling weight, through an intermediate hammer (steel), to the test material resting on an anvil (steel). Initiation, or a "shot," is detected by observing odor, stain, smoke, noise, etc. An infrared analyzer is also used to detect decomposition products. Sufficient tests are conducted to generate data necessary to perform a probit analysis. Figures 1-5 show the probit plots, probability of initiation versus test stimuli, for the four dynamites and NG. No plot is shown for Gel Power A-2 since no shots were detected at the highest equipment test levels with either A-2 or A-2 plus encapsulated tags. In most cases there was little or no difference whether or not tags were present in the explosive or whether or not the tags were encapsulated.

Friction Tests

Friction testing was conducted on the ABL sliding friction machine. This machine is capable of determining the initiation response of an explosive to friction by exposing the test material to the friction of a steel wheel sliding on a steel anvil. The anvil is driven at a known velocity while a static pressure is applied to the wheel. The velocity was 3 mps, except for NG, and the pressure was reduced in steps until there were no shots in twenty trials (this constituted the TIL). As was the case for impact, the percentage of shots at a given energy level was plotted on probability paper. These probit plots are shown as Figures 6-10.

CONCLUSIONS AND RECOMMENDATIONS

The results of the tests conducted under this contract indicate the presence of "combined, first article, encapsulated, 3M" taggants does not significantly affect the sensitivity of the slurry explosive or dynamites tested. Although also not considered to constitute a significant difference, some explosives (4 or 5) are slightly more friction sensitive when unencapsulated (as opposed to encapsulated) tags are present.

The overall conclusion of this analysis is that the presence of encapsulated tags should not adversely affect the manufacturing hazard if these materials are added to the slurry explosives and dynamites tested in the concentrations cited. Further, the data obtained on unencapsulated tags do not alter this conclusion.

NATIONAL RIFLE ASSOCIATION OF AMERICA
INSTITUTE FOR LEGISLATIVE ACTION
1600 RHODE ISLAND AVENUE
WASHINGTON, D.C. 20036

June 6, 1979

The Honorable Abraham Ribicoff
United States Senate
Washington, DC 20510

Dear Senator Ribicoff:

I appreciated your many courtesies when I testified May 7 before your Committee on the explosives tagging section of the anti-terrorism bill. I hope the following information will satisfactorily answer the written questions you sent me.

You asked for my comments on additional tests that may need to be conducted to study the effects of taggants in black and smokeless powder. The question was prefaced with a statement that GOEX reported the taggant compatible with its manufacturing process and its product in trial runs, and that the taggant had little effect on ballistics. According to the letter from GOEX that I submitted with my testimony, the company mentions specific concerns about the use of taggants in its manufacturing process. Mr. Fahringer stated, "we have never made a verbal or written statement that approved the addition of taggants into black powder."

It is my firm conviction, based upon personal experience with electronic pressure measuring equipment and blackpowder, that data developed from tests conducted on only 20 rounds of tagged and 20 rounds of untagged black powder is insufficient, particularly when using an obsolescent mechanical pressure-measuring device. The black powder tests were conducted for GOEX by Edward Yard. In other black powder tests in the past, with which I am familiar, Mr. Yard had followed a procedure of cleaning the bore after each round. In normal use, most shooters of black powder firearms do not clean the barrel after each round. Electronic pressure measuring equipment shows that there is a significant increase in peak pressure after the first round if the barrel is not cleaned, with a generally higher, progressive increase in pressures following subsequent shots until the barrel is cleaned. Depending upon the tightness of the bullet patch, and other factors, a barrel can usually be fired seven to as many as twelve or fifteen shots prior to cleaning. With each shot, the cumulative build up of black powder fouling causes the subsequent shot to be harder to load and to generally produce higher pressure.

Extensive tests would have to be conducted to:

1. Determine the amount and effects of tagged black powder fouling, and subsequent effects upon pressures.

2. Determine whether the tagged black powder fouling creates significantly higher abrasiveness, which would increase damage to the relatively soft steels used in antique barrels, or replicas.

3. Determine what gases are emitted from the taggants during high temperature burning, and whether such gases are toxic or carcinogenic. Although black powder is not used in indoor ranges, to the best of my knowledge, black powder blanks are frequently hand loaded for use in the movie and drama industry.

Smokeless propellents with taggants should also be tested for environmental effects resulting from possible toxic or carcinogenic fumes and vapors emitted during burning at 50,000 psi pressure and approximately 5,000 degrees Kelvin temperatures (at which the propellent burns during firing). Handloaded ammunition is frequently used in indoor ranges, both by police and individual competitive shooters, so toxic or carcinogenic fumes would be extremely hazardous.

A possibility exists that residues from smokeless propellent powder containing taggants could be somewhat different from other smokeless propellent residues, and might tend to harden with age and/or with humidity variations. Since shooters of modern, noncorrosive propellents and primers do not religiously clean their firearms after use, and may not clean them at all, pressures from firing normal loads in an uncleaned, stored barrel might be excessive. Tests for this effect would be time-consuming, due to their nature.

Last year, one of the explosives manufacturers reported a possible breakdown of the taggant due to exposure of nitroglycerin in dynamite. Double base smokeless propellents also contain nitroglycerin, in quantities of five percent to almost fifty percent. If there were a reaction of the taggant during storage, fires could be produced in the homes of handloaders. Extensive tests should be conducted to determine safe storage of tagged smokeless powder; untagged smokeless propellant is extremely safe to store.

In answer to your question on NRA's willingness to encourage its members to participate in this testing, I believe the type of testing that would have to be conducted would be with such sophisticated instrumentation that individual shooters could not materially assist in the performance of such tests. However, should a manufacturer produce tagged black and smokeless powder and need it tested by volunteer consumers, I feel certain that it could be arranged, and the NRA would be pleased to encourage such volunteers if it could be done in a manner that would avoid our becoming liable for storage fires, gun damage, or other mishaps.

Your second question asked what, if any, additional recordkeeping burden would be placed on black and smokeless powder retailers and consumers with the implementation of the tagging program.

It is not possible to provide a precise answer to that question for the regulations have not been written, and I can only make a reasonable assumption based upon certain facts. At the present time, black powder requires extremely stringent recordkeeping, throughout the distribution chain, and it is possible that a taggant code could be added to the present recordkeeping without too much additional time and effort.

However, a totally different set of circumstances applies to smokeless propellants, for it is my understanding that wholesalers keep only normal commercial records (such as information indicating "received 100 pounds of IMR-4831"). Under a taggant law, those wholesalers would have to make one line entry for each 10-pound case of IMR-4831, since each case might bear a different taggant code. Further, each case would have to be physically inspected, and the recorded code compared, both upon receipt and upon shipment.

In the instance of retail dealers, much the same is true for the additional recordkeeping required for receipts, but the amount of increased recordkeeping per sale would vary according to the type of smokeless propellant being sold, and whether that powder is normally used for handguns or rifles and shotguns. The difficulty in attempting to predict additional recordkeeping is that the amount of recordkeeping required under existing law may vary according to interpretation, for Congress has given BATF and dealers the impossible task of separating the inseparable. Under law, retail dealers must record sales of handgun ammunition, and ammunition is defined to include handloading components. The difficulty is that almost all rifle cartridges have been chambered in certain special-purpose handguns; further, since every rifle propellant could be used in those handgun-chambered essentially rifle cartridges, any ammunition component could be considered a "handgun ammunition component" -- Congress enacted an exemption for rifle and shotgun ammunition a decade ago, and undoubtedly intended that something be exempted.

As a practical matter, we view the additional recordkeeping by wholesalers and dealers through the eyes of consumers; we have a general idea of what is involved and what would be added by the proposed law, but we defer to the experts in industry to accurately predict the amount and cost of recordkeeping. As you are aware, they estimate that the total cost for additional recordkeeping and the purchase of taggants would result in an increase in the price per pound of propellant of $2 to $2.50, or roughly a 25 percent to 30 percent increase in the price to consumer.

In testimony before the House Subcommittee on Aviation we had expressed concerns about the potential recordkeeping costs that would ultimately be passed on to the consumer. These costs were considered along with costs of the purchase of taggants; their insertion in propellant powders during the manufacturing process; the costs incurred in ballistic and other testing, and other increased costs to consumers.

In response to our concerns on recordkeeping, BATF advised Congress that the only additional requirement would be to add the taggant identification number to the information requesting caliber, gauge, or type of component. However, as indicated above, the ramifications of that simple requirement are substantial.

Our members have experienced first hand the problems with additional regulations on firearms and ammunition. When legislation was passed to increase the amount of blackpowder an individual could purchase without permit from 5 pounds to 50 pounds, it was clear that black powder would continue to be exempted from additional recordkeeping requirements. However, BATF proposed and eventually finalized regulations imposing separate recordkeeping on blackpowder in quantities 50 pounds and under.

Unless specific legislative language limiting recordkeeping requirements is written into the bill, we will have no guarantees that additional burdens will not be imposed on the retailer, and costs passed on to the consumer.

I will be pleased to offer you any further information which you may find necessary in evaluating the explosives tagging program.

Sincerely,

Neal Knox
Executive Director

NK/mdr

Question from Senator Stevens

Question: No. 1 — It is my understanding that 3M tags will illuminate when exposed to a "black light" and that this is a method of determining their presence in the explosive. Is this correct?

Answer: — The 3M tags will fluoresce when exposed to a "black light." This does not, however, ensure that one can use this fluorescence as a method of determining their presence in the explosive. It is technically possible to obscure the fluorescence under a UV-opaque layer so that the tag will not strongly fluoresce in the explosive. The UV-opacifier is then burned away by heat during detonation, thus exposing the fluorescent surface and thereby facilitating "black light" search and tag recovery.

Question: No. 2 — I understand that BATF plans to require that part of the tags used be magnet sensitive and part not be magnet sensitive. Is that correct?

Answer: This plan is presently under consideration to insure against the magnetic removal of identification tags from explosives. Alternatively, under development is a tag which would become magnet-sensitive only after detonation of the tagged explosive.

Question: No. 3 — Taking a 1/2 pound stick of dynamite, it would be relatively easy, would it not, to open the dynamite, spread out and illuminate the powder with the "black Light" and then to remove the tags with either a magnet by hand or something like a toothpick?

Answer: No; complete removal would not necessarily be a "relatively easy" task. The ease with which this action may be achieved depends upon the type of dynamite used and whether or not UV-opaque and/or non-magnetic tags are incorporated. The degree of ease with which this could be accomplished will range through the extremely difficult requiring laboratory facilities.

If UV-opaque and non-magnetic tags are used, as in the dry, powdery dynamites from which taggant removal is the least arduous, then it appears at this time that no removals could be viewed as easy or dependable.

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Question from Senator Stevens

Question: No. 4 — And, would you not also agree that this process, if done with reasonable care, is not dangerous and does not destroy the explosive quality of the material?

Answer: No. As with the difficulty of thorough removal of taggants, the safety of the process and the reliability of the remaining explosive material depend upon the type of explosive from which the tag removal is being attempted and the skill level of the individual attempting the removal. Removal is not a process that we would endorse as safe.

Question: No. 5 — It is my understanding that a homemade bomb can be assembled and detonated from materials which are easily obtainable and which would never be tagged under the provisions of this bill. Would you agree?

Answer: ATF bomb investigation reports and laboratory analyses show that the majority of homemade bombs are made with dynamites, and black and smokeless powders, all of which we propose to tag, and all of which are easily obtainable.

Furthermore, it is common for even homemade bombs to use commercial detonating cord and blasting caps to initiate the explosions. We intend to tag such cords and caps.

Question: No. 6 — I am aware of at least six, widely circulated publications which describe in detail how to make a homemade bomb. You are, of course, aware of these. Is it your opinion that these are either ineffective or are out of the reach of terrorists?

Answer: There are many publications now in the public domain, and therefore readily available to terrorists, that describe how to make homemade bombs.

Their effectiveness, however, is highly questionable. Please refer to the attached tables showing the fillers used in pipe bombs and all bombs investigated by ATF in 1978. It is obvious that the bomber prefers to use a readily available explosive filler rather than concoct his own.

For those cases involving political terrorism, investigative jurisdiction is assumed by the FBI pursuant to inter-agency agreement between the Departments of Treasury and Justice. Determinations as to jurisdiction are made by the Office of the Attorney General on a case by case basis. The FBI has stated that the pipe bomb is most used in political terrorist attacks, and over 50% are filled with black or smokeless powders.

The following shows the fillers found in pipe bombs in 1978. Data comes from reports of analysis made by all ATF laboratories.

Type of Filler	Frequency	Percentage
Smokeless powder	66	41
Black powder	42	26
Unknown	21	13
Flash powder	6	3
Dynamite	6	3
Low explosive	6	3
Matchheads	3	1.8
Gels	2	1
Military	1	--
Sugar/Chlorate	1	--
Smokeless and low	1	--
Smokeless and flash	1	--
Dynamite and C4 and TNT	1	--
Binary	1	--
Black powder and gasoline	1	--
Total	159	

Types of explosive filler used in all bombings investigated by ATF in 1978.

Type of Filler	Frequency	Percentage
Flammable liquid	468	26.5%
Black powder	171	9.7%
Smokeless powder	157	8.9%
Military explosives	54	3.0%
Dynamite	251	14.2%
Blasting agent	8	.4%
Chemical	7	.4%
Other	176	10.0%
Unknown	475	26.9%
Total Filler	1,767	100.0%

Source: ATF Case Summary Reports

Question from Senator Stevens

Question: No. 7 — Would you agree that a homemade bomb could be made from such materials as low density prilled ammonium nitrate, gasoline and a small amount of finely powdered aluminum and gasoline?

Answer: ATF bomb investigation reports and laboratory analyses reveal that the overwhelming majority of homemade bombs are made from commercially available powders rather than the improvised explosive materials such as those you suggest.

While explosive devices can be fabricated from materials such as you describe, the occurrence of these ANFO-type bombs has been rare. Furthermore, while it is conceptually feasible to detonate an ANFO-type explosive with something other than a commercial high explosive, in practice that is not done; and both commercial blasting practices and underground publications call for the use of high explosive commercial boosters or dynamite to initiate ANFO-type detonations. We will tag both dynamites and boosters. The one notable use of an ANFO-type blasting agent was the bombing of the University of Wisconsin mathematics center. That bomb was detonated by using dynamite as the initiator.

Question: No. 8 — Would you agree that these ingredients can be purchased from many supply stores and hobby shops?

Answer: Yes

Question: No. 9 — Do you intend to tag any of these ingredients under the provisions of S.333?

Answer: Our intention, and we hope the purpose of Section 303 of S.333, is to combat the criminal misuse of explosives by tagging those explosives most often used in crimes. On that basis, we set priorities when we established the Explosives Tagging Program. At that time, dynamite and other high explosives were most frequently used in criminal bombings and we directed our initial research at that class of explosive materials. Meanwhile, the frequency of use of black and smokeless powders in bombings increased substantially, and these explosives were included in our explosives tagging research program.

As our responses to questions 6 and 7 demonstrate, the many ingredients from which homemade bombs could possibly be manufactured are rarely found to be used in criminal bombs. Therefore, at this time, we do not intend to tag these ingredients. Furthermore, in 1970 Congress itself felt that many of these ingredients did not require regulation in the same manner as other explosives and specifically exempted them from control under Title XI of the Organized Crime Control Act. On the other hand, the commercial explosives used as fillers or detonators for homemade bombs -- dynamites, black and smokeless powders, boosters, fuses, blasting caps -- will be tagged.

Question from Senator Stevens

Question: No. 11 — Would manufacturers not find it difficult in seeking a reduced price if each manufacturing lot is not large enough to warrant large amounts of a single tag? Won't this present a hardship to smokeless powder manufacturers who produce a variety of powder types? Will not different types of grain sizes, shapes and densities require a different tag?

Answer: As explained in Question No. 10, the prices and order quantities quoted in the 3M Company price list do not apply to the Explosives Tagging Program.

Concerning the tagging of smokeless powder, the standard taggant will have a density and particle size which may not match some smokeless powder grains; however, these taggants may be further modified by molding them to match the size and shape of grains of smokeless powder. On the Inflation Impact Analysis (April 1979), prepared by The Aerospace Corporation, the estimated total price increase of the Explosives Tagging Program (including both identification and detection tagging) for a one-pound can of smokeless powder would be 11¢. In any case, extensive tests are being conducted at this time by manufacturers of smokeless powder. Upon completion of these tests, we will be better able to define any problems that may exist and work to eliminate them.

Question from Senator Stevens

Question: No. 12 — Propellant powders have a long shelf life. How many years does BATF intend to have manufacturers reserve a code?

Answer: Codes will not be reserved by manufacturers. The taggant supplier will automatically reserve the codes for the manufacturers. At present, the codes will have a repeat period of five years. However, even with repetitions of codes after a five year period, tracing should still be possible in many cases although it would clearly be compounded in difficulty because of the repetition.

Since there is no technical limitation inhering in ID-taggants which imposes only a 5-year repeat period, the taggant distribution system should be able to develop alternatives capable of extending the years between repetitions of the codes.

We should also note that there is little history of the use of old explosives in criminal bombings.

Question from Senator Stevens

Question: No. 13 — By your estimate, what would be the overall costs to the explosive and powder manufacturers for taggants per year? Please include not only the cost of tagging but the costs of paperwork. Please detail any data on which you base your conclusions.

Answer: The projected overall costs of tagging to the explosives and powder manufacturers are shown in the attached Amended Table No. 4-3, Annual Costs to Explosives Manufacturers, prepared by The Aerospace Corporation. The column headed "Labor Cost" includes recordkeeping costs. The attached table is taken from the "Explosives Tagging Inflation Impact Analysis" (April 1979) which was included as Attachment I of the written statement submitted, for the record, by Dr. Robert Moler of the Aerospace Corporation to the Senate Governmental Affairs Committee on May 7, 1979. The analysis assesses in detail all the expected costs of tagging explosives for detection and identification.

April 1979

Amended Table 4-3. Annual Costs to Explosives Manufacturers

Explosive Type	Material Cost ID	Material Cost Detection	Labor Cost	Retooling Cost Amortized Over 5 Years	Total Annual Cost
Cap-sensitive Packaged Explosives	$6,500,000	$5,200,000	$900,000	---	$12,600,000
Cast Boosters	732,000	96,000	400,000	---	1,228,000
Smokeless Powder	120,000	80,000	330,000	---	530,000
Black Powder	10,000	6,400	6,000	---	22,400
Detonating Cord	60,000	17,600	10,000	$ 50,000	137,160
Blasting Caps	1,155,000	2,402,400	400,000	1,600,000	5,557,408
				TOTAL:	$20,074,968

Question from Senator Stevens

Question: No. 14

I am extremely concerned that 3M claims no liability for any injury, loss, or damage, direct or consequential, arising out of the use or inability to use their product. Is not Congress mandating a program requiring manufacturers to add something to their product over which they have no control while dictating that they will have no redress? Do you agree that this is a problem? What is your solution?

Answer:

The explosives industry historically has been an extremely hazardous business. This is the reason that in asking the companies to perform the safety and compatibility tests we request them to specify their own tests in order that they could satisfy themselves that the product was safe. In each case, this was done. The 3M Company is willing to provide a taggant in accordance with specifications which have been proven to be safe and with standards which will be set down by the Secretary of the Treasury. The 3M Company is willing to accept liability for defects in its taggants, which is the proper limit of its liability and no less than the product guarantee given by the explosives manufacturers themselves.

Question: No. 15

Your MSA study, used as a justification for this program, reports that criminals have enough explosives for 5 - 6 years, assuming 1,000 bombings per year. The same report indicates that the identification tagging will not reach a break-even point for 8 - 12 years. Yet, this break-even point and the cost-benefit ratio seem to be computed independent of the knowledge that criminals have supplies of untagged explosives. That fact is added as a sort of post script. Could you explain this?

Answer:

The Congressionally mandated purpose of 18 USC, Chapter 40, ". . . to protect interstate and foreign commerce against interference and interruption by reducing the hazard to persons and property arising from misuse of explosive materials . . ." is the justification for the tagging research, not the cost-benefit study made by Management Science Associates.

The MSA report, which makes an honest attempt to quantify, in dollars, the full array of costs to society caused by bombings, addresses the stockpiling of explo-

sives by criminals only briefly. The study does address the effect of pre-program thefts on program cost benefits (Section 6-6, p. 108). By formula, it is demonstrated that benefit-cost ratios for identification tagging are favorable, in terms of deterrency, even if criminals used only their pre-program "stocks" of explosives. For detection tagging, the report states that the use of pre-program explosives may indeed change a borderline situation into an unfavorable one.

Some side issues are worthy of mention in regard to stockpiling.

1. Areas of the United States that have the largest number of thefts do not have the largest number of bombings.

2. Bombing cases show that in most cases the explosives were obtained locally (within 200 miles) to the bomb site.

Some explosives, therefore, are likely stolen for legitimate blasting use, and it is not likely that every pound stolen is being stockpiled by criminal bombers.

Question: No. 16 — In your own opinion, would not the passage of this legislation provide a powerful incentive for criminals to steal as many explosives as possible before the deadline as well as starting a profitable black market in untagged military explosives?

Answer: At present, the Bureau finds that there is a black market in industrial explosives. The Bureau is making every effort to stop it. The proposed Explosives Tagging Program is intended to be a part of that effort, by making possible the identification of sources so those sources can be tightened.

Reported thefts and undercover buys of military explosives are only a fraction of one percent of the totals. Consequently, we see no black market of significant proportions in military explosives.

Question from Senator Stevens

Question: No. 17 — It appears that this is essentially a regulatory program, since you obviously cannot trace an explosive which is not bought through legal commerce. Your agency reports that 60,000 pounds of explosives were stolen last year and you recovered 40,000. Do you believe that criminal and terrorist explosives are purchased with proper identification? Existing federal law requires thefts to be reported, how do you expect to accomplish anything when a taggant leads back to a theft reported earlier which you did not solve?

Answer: We will be able to trace a tagged explosive material directly until it leaves the legal channels of commerce. This is a valuable tool to the investigator and gives him a point at which to start an investigation. This permits an investigation that is considerably more focussed than can ordinarily be expected in bomb cases without the clear trail of legal ownerships that tagging will provide.

Although Federal law requires that when the thefts of explosives are discovered they be reported to ATF, many persons are not aware that a theft from their stock of explosives has occurred until an ATF trace of recovered explosives is made. The thefts that are not discovered are mainly internal and not easily detected. We feel that a secondary benefit from tagging would be a reduction in thefts because owners of explosives would improve their security in order not to be caught in the situation where their explosives had been stolen without their knowledge and used in a crime.

The value of identification tagging could not be demonstrated more clearly than by ATF's June 18 arrest of a West Virginia man in a homicide-bombing case. By tracing taggants recovered at the scene of a fatal truck bombing, ATF Special Agents identified the suspect who had purchased dynamite containing identification taggants added as part of ATF's nationwide pilot test of tagging. By matching the color code of the recovered particles with the manufacturing and distribution records, ATF agents were able to identify the last legal purchasers of the dynamite lot used in the fatal bombing. Armed with the scientifically developed identity of this group of possible suspects, ATF agents were able to examine other facts, such as association with the victim, motive, and opportunity for the murder, and thus to identify and arrest the suspect.

Question from Senator Stevens

Question: No. 18 — You are promoting tagging as an anti-terrorism measure. Yet, only 11% of bombings come under the heading of terrorism and, the FBI has recently reported a 48% decrease in terrorist bombings for 1978. The FBI, in fact, has announced that they are reducing the manpower assigned to terrorist activities by 70 men. I also note that the FBI, not the BATF has exclusive jurisdiction over bombings. Why are you promoting a new, multi-million dollar program in your agency when the FBI, with exclusive jurisdiction over bombings is cutting the program back?

Answer: We are proposing explosives tagging as one measure to combat the misuse of explosives in all criminal bombings, not merely terrorist bombings. In the investigation of bombings, the FBI takes charge where there is evidence of terrorist involvement, while ATF has responsibility for investigating most other bombings. Although the number of bombings committed by terrorists may have decreased (ATF does not maintain statistics on all terrorist bombings), our statistics indicate that the total number of criminal bombings has increased.

Question from Senator Ribicoff

Question: In the March 30 hearing, Mr. Davis told the Committee he would furnish, for the record, the ballistic tests results for black powder.

Answer: The ballistics tests on tagged black powder were included in Attachment G of the written statement submitted, for the record, by Dr. Robert Moler of the Aerospace Corporation to the Senate Governmental Affairs Committee on May 7, 1979.

Question from Senator Levin

Question: No. 1 — I understand that it's been estimated by the Bureau of Alcohol, Tobacco and Firearms that the adoption of this bill will have a minimal effect on the cost of black and smokeless powder. Could you elaborate?

Answer: Our research contractor, The Aerospace Corporation, has prepared an inflation impact analysis on the basis of information provided by producers of black and smokeless powders and information obtained from an analysis of recordkeeping practices in the market distribution chain. This has been provided to the committee previously. The projected costs of tagging for identification and detection are as follows.

	Black Powder	Smokeless Powder
Quantity Produced/Yr. (millions of pounds)	0.4	5.0
Program Cost ($1000's)	22	530
Increased Cost $/pound	0.77	0.11
Retail Price/pound		
Range	5.00 - 7.00	4.00 - 8.00
Average	6.00	6.00
Percent Increase	1%	1.7%

Question from Senator Levin

Question: No. 2 — Isn't it true that there's been a significant increase in the deaths and injuries resulting from use of black and smokeless powder in terrorist bombings?

Answer: ATF records show the following with respect to investigation of bombings in which black and smokeless powders were used.

	Black Powder		Smokeless Powder	
	Killed	Injured	Killed	Injured
1976	4	14	2	13
1977	2	32	3	16
1978	4	19	3	23

For the past 3 years, ATF figures for persons killed and injured in bombings involving black and smokeless powders remain relatively constant at 6 killed and 39 injured per year.

For those cases involving political terrorism, investigative jurisdiction is assumed by the FBI pursuant to inter-agency agreement between the Departments of Treasury and Justice. Determinations as to jurisdiction are made by the Office of the Attorney General on a case by case basis. The FBI has stated that the pipe bomb is most used in political terrorist attacks, and over 50% are filled with black or smokeless powders.

Question: No. 3 — If this powder is excluded from the explosives tagging program, won't its use increase and its exclusion seriously undercut the effectiveness of the tagging effort and the fight against terrorism?

Answer: It is likely that the use of black and smokeless powders in bombings will increase if they are excluded from tagging.

Refer to the attached tables showing fillers found in pipe bombs and all bombs in 1978. It is obvious that the bomber prefers to use a readily available powder rather than concoct his own. If cap-sensitive explosives fall out of favor because they are tagged, the bomber is most likely to switch to untagged black and smokeless powders as the fillers of choice.

Even if black and smokeless powders are excluded from tagging, the program might be worthwhile and cost-beneficial.

The Management Sciencce Associates study projected direct and indirect social costs from bombings at $130 million per year. This includes costs of fatalities, injuries, property damage, and all other costs. The report also states that dynamites and unknowns account for roughly 60% of fatalities and injuries, and about 80% of property damage if most of the "unknown" category is attributed to dynamite.

If we conservatively attribute 50% of the total annual direct and indirect bombing costs to dynamites alone, the annual cost of dynamite bombings is $65 million.

The current inflation impact analysis prepared by The Aerospace Corporation projects the costs of identification and detection tagging of cap-sensitive packaged explosives, which category includes dynamites, at $40,500,000. This includes the $12,600,000 cost to manufacturers, $22,500,000 instrumentation cost, and $5,400,000 increased investigative cost.

If the $40.5 million annual tagging cost for all cap-sensitive packaged explosives is taken as the cost of tagging only dynamites, which use in bombings generates an estimated annual cost of $65 million, then such a limited tagging of explosives might be worthwhile and cost-beneficial.

The elimination of black and smokeless powders from consideration for tagging would extend the projected break-even time for the program from the 11 years from date of program commencement to a later year. This break-even time is the time after which the program becomes economically worthwhile, as described in the study, i.e., the direct and indirect cost of bombings now at $130 million annually has been reduced to the cost of tagging.

The following shows the fillers found in pipe bombs in 1978. Data comes from reports of analysis made by all ATF laboratories.

Type of Filler	Frequency	Percentage
Smokeless powder	66	41
Black powder	42	26
Unknown	21	13
Flash powder	6	3
Dynamite	6	3
Low explosive	6	3
Matchheads	3	1.8
Gels	2	1
Military	1	--
Sugar/Chlorate	1	--
Smokeless and low	1	--
Smokeless and flash	1	--
Dynamite and C4 and TNT	1	--
Binary	1	--
Black powder and gasoline	1	--
Total	159	

Types of explosive filler used in all bombings investigated by ATF in 1978.

Type of Filler	Frequency	Percentage
Flammable liquid	468	26.5%
Black powder	171	9.7%
Smokeless powder	157	8.9%
Military explosives	54	3.0%
Dynamite	251	14.2%
Blasting agent	8	.4%
Chemical	7	.4%
Other	176	10.0%
Unknown	475	26.9%
Total Filler	1,767	100.0%

Source: ATF Case Summary Reports

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• the safety association of the commercial explosives industry •

July 16, 1979

Honorable Abraham Ribicoff
Chairman, Senate Governmental
Affairs Committee
Room 337
Russell Senate Office Building
Washington, D.C. 20510

Re: S.333 - Identification Tagging of Explosives

Dear Senator Ribicoff:

I am enclosing my answers to the questions that you posed in your letter of May 9, 1979. In answering these thoughtful questions the IME carefully reviewed all aspects of the identification tagging program proposed by BATF. This review reaffirmed all of the safety, feasibility and cost concerns that we have previously expressed.

In recognition of the possibility that the broad disagreements on the issues surrounding explosives tagging may make it difficult for the Committee to draw reasonably certain conclusions about the proposed program, we have provided lengthy, detailed answers. If the IME can be of any further assistance to you or the Committee in this important matter, please do not hesitate to ask.

Very truly yours,

David M. Gleason

DMG:cmm

Enclosure

50-412 O - 80 - 16

UNITED STATES SENATE

COMMITTEE ON GOVERNMENTAL AFFAIRS

ANSWERS SUBMITTED BY DAVID M. GLEASON, PRESIDENT OF THE INSTITUTE OF MAKERS OF EXPLOSIVES, TO QUESTIONS PROPOUNDED BY CHAIRMAN RIBICOFF AT THE MAY 7, 1979 COMMITTEE HEARING ON S.333

INTRODUCTION

These answers are submitted in response to questions propounded to Mr. David M. Gleason, President of the Institute of Makers of Explosives by Chairman Ribicoff at the May 7, 1979 Committee hearing on S.333. The broad disagreements on the issues surrounding explosives tagging have made it difficult for those unfamiliar with the explosives industry to draw reasonably certain conclusions about the proposed program. Consequently, we have provided lengthy, detailed answers to assist those who must evaluate the merits of the tagging program.

Aware of the potential credibility gap created by these divergent viewpoints, we drafted these detailed answers only after critically re-analyzing the testimony and data presented in support of a tagging program. That re-evaluation confirmed our conviction: at very best the tagging program is a premature, cost-ineffective proposal of questionable social value. It is premature because at the present time the proposal is completely open-ended and dependent upon the resolution of many variables

which dramatically affect its cost/benefit and feasibility evaluations:

- No all-purpose taggant has been developed.
- The taggants have not been adequately tested for both survivability and recoverability under real world conditions in all types of explosives. Consequently, no one is sure of the appropriate lot sizes and taggant concentrations.
- Taggants have not been adequately tested to insure they meet the high standards of safety required by the explosives industry.
- Taggants have not been fully tested in full-scale commercial production in any type of explosive product.

A more realistic appraisal of the tagging program is that it will be an exorbitantly priced law enforcement tool having a marginal benefit. The costs will be high:

- The existing cost estimates ignore the language of S.333 and exclude the largest class of commercially-produced explosives (noncap-sensitive explosives).
- The existing cost estimates assume an unrealistically low price for the taggants in the monopolistic market created by a national tagging program.
- The existing cost estimates fail to adequately explain how the renewal fees currently charged by 3M would be eliminated in a monopolistic market.
- The recordkeeping cost estimates are grossly unrealistic.
- The cost estimates ignore the economic impact of the 15% loss of productivity occasioned by the introduction of taggants into the manufacturing process.

We believe that a more accurate estimate of the annual cost to industry alone will be at least $703 million dollars.

When weighed against the "benefits" of tagging explosives, very serious questions must be raised. Bombings are well-planned premeditated acts, not crimes of passion, and tagging will deter neither the criminal nor the terrorist from cold-blooded killing. At very best it provides a confirmatory tool for a solvable crime.[1] According to BATF, commercially-produced explosives are used in 53% of the bombings - or approximately 950 bombings annually.[2] Arrests are made in 8% or 76 of these bombings;[3]

1/ The much-publicized "McFillin Bombing," involving tagged cap-sensitive explosives, is a case in point. For several reasons, it is clear that taggants were not necessary to establish the nexus between McFillin, and either the crime or the purchase of the explosives:

- McFillin was the prime suspect from the beginning because:
  1) he had accused the deceased of having an affair with his wife,
  2) he had previously threatened the deceased with a shotgun, and
  3) the morning before the bombing he had publicly accused his wife of having an affair with the deceased.
- BATF suspected McFillin before they knew he had purchased the explosives, because they took McFillin's picture to the dealer.
- McFillin signed his real name when he purchased the explosives. Had he acted like the majority of bombers, he would have stolen the explosives, or used an alias.
- McFillin admitted purchasing the dynamite, but a search disproved his alibi and uncovered an ignition wire from the deceased's vehicle in the trunk of McFillin's car. See Affidavit of Daniel P. Boeh, United States v. McFillin, Magis. No. 2-79 133P (D.Md filed June 18, 1979). Thus, at best, the taggants were a confirmatory tool for an easily solvable, amateur bombing.

Moreover, this was an atypical bombing because the explosive did not completely detonate. Thus, the taggants that were recovered came from the undetonated explosive. Lyons, Tagging Bombs, Trapping Bombers, N.Y. Times, June 24, 1979, at E7, col. 1.

2/ Intelligence Branch, Bureau of Alcohol, Tobacco and Firearms, Department of the Treasury, Explosives Incidents: 1977 Annual Report 22 (1978). This figure is derived by subtracting bombings involving non-commercially produced explosives (flammable liquids, military explosives, chemicals, other) from the total of bombings where the filler was known. This involved 408 or 53% of the bombings. We then assumed that commercial explosives were involved in the same proportion of bombings where the filler was unknown -- or 546 bombings.

3/ Roth, Evaluation of the Needs and Benefits of the Explosives Tagging Program: Final Report 67 (1978), reprinted in International Terrorism: Hearings on H.R. 13261 Before the Subcommittee on Aviation of the House Committee on Public Works and Transportation, 95th Cong., 2d Sess. 207, 282 (1978).

and BATF believes that tagging will increase the arrest rate to 12%.[4] Thus, the tagging program, assuming no circumvention, assertedly will allow BATF to arrest 38 more suspects on bombing charges.

We believe the figures speak for themselves. Placing identification taggants in explosives is a bad idea whose time will never come.

4/ Id.; see Statement of G. R. Dickerson, Director, Bureau of Alcohol, Tobacco and Firearms on Section 303 - Explosives Taggants of S.333 the Omnibus Anti-Terrorism Act of 1979 for the Senate Committee on Governmental Affairs 8 (March 23, 1979).

QUESTIONS AND ANSWERS

1. If the explosives industry believes taggants to be unsafe, can you explain why your member companies have sold their customers millions of pounds of tagged explosives? We understand three IME member companies are still under contract with the Aerospace Corporation to tag permissible explosives for sale once the permissibility test program is complete (Bureau of Mines and Mining Safety and Health Administration).

Response

Participation in an experimental, limited pilot program designed to test the feasibility of tagging explosives products should not be construed as a carte blanche endorsement of the conclusions drawn therefrom by the advocates and sponsors of the experiment - BATF and Aerospace Corporation. In fact, the parameters of the experimental program alone belie the sweeping conclusion that all tagged explosives products are safe for normal production methods, storage, transportation, and use.

The "millions of pounds of tagged explosives" produced in this program represented only 2.4% of the 275 million pounds of cap-sensitive explosives produced in the United States each

year.[5/] It did not include the remaining 3.42 billion pounds of explosives materials (cast boosters, smokeless and black powders, and noncap-sensitive explosives), the 500 million feet of detonating cord, and the 84 million blasting caps produced annually. The latter products must also be tagged under S.333; however, they have never been commercially produced with taggants on even an experimental basis. Consequently, there is no basis to conclude that the addition of taggants to these products will not diminish safety during production, storage, transportation, and use. For this reason we construe the question as asking us to address only the safety questions of tagging cap-sensitive explosives in light of the pilot program. We will answer it accordingly.

Contrary to the assertions of BATF and Aerospace, the pilot program did not conclusively demonstrate that tagged cap-sensitive explosives could be safely produced, stored, transported and used on a full-production basis. These explosives were not mass-produced; instead, for safety reasons the contract with Aerospace Corporation expressly required that the taggants be added by hand during the mixing process.[6/] This led one parti-

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5/ According to BATF's contractor, the Aerospace Corporation, 6.6 million pounds of cap-sensitive explosives were tagged in the pilot program. Prepared Statement of Dr. Robert Moler of the Aerospace Corporation For Presentation to the Government Affairs Committee of the U.S. Senate on Explosives Tagging 4 (May 7, 1979). The 2.4% figure is calculated using an annual production level for cap-sensitive explosives of 275 million pounds.

6/ See, e.g., Agreement Between the Aerospace Corporation (Aerospace) and E. I. DuPont de Nemours & Company (DuPont) Relative to the Performance of the Pilot Test of Explosives Identification Tagging cl. 3.5 (Sept. 3, 1977), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment E, Appendix B, Enclosure.

cipant in the pilot program to conclude that although no production problems were encountered in the pilot program, "[i]t is obvious that under less controlled conditions there will be a much greater probability of errors."[7/] Thus, as of today, taggants have only been added to a limited number of products. This has only been done under experimental conditions, with laboratory-produced taggants, and no one has ever added and mixed taggants by normal production methods.

We are aware that other industries routinely implement full-scale production changes based solely on engineering analyses and pilot programs; however, the explosives industry cannot. We manufacture high explosives; the production of which demands 100% safety 100% of the time, for one error of any type can trigger an explosion that endangers us, our employees, and the public at large. Our social and legal responsibility requires that this be prevented, and prevention requires ultraconservatism. Thus, any full-scale production or product changes have always been made only after extensive and time-consuming limited production. This is particularly true where a foreign substance, such as taggants, is introduced into the product. It is beyond dispute that this type of testing has not been done with taggants.

There is one additional reason for our hesitancy to quickly and dramatically change our production processes and products to include taggants: we are strictly liable for any premature

7/ E. I. DuPont de Nemours & Co., Progress Report: Pilot Test - Aerospace Order 67885 4 (undated)(emphasis added), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment E.

detonation caused by the taggants, whether in the factory or in the field.[8/] These damages average in the hundreds of millions of dollars. Recognizing this, Aerospace Corporation offered to, and did indemnify the participants in the pilot program for all damages resulting from the taggants.[9/] Thus, while IME members participated in the program, they bore no risk. The magnitude of the risk is such that while it is one thing for Aerospace (who would be reimbursed by the United States government) to accept the risk of a pilot program; it is another to place the burden of a full-scale program on the industry.

One additional salient feature of the experimental program is overlooked by the question: distribution of the tagged explosives. The question infers that the explosives were distributed to customers generally. This is inaccurate. The contract with Aerospace Corporation only required limited distribution

8/ Challoner v. Day & Zimmerman, Inc., 512 F.2d 77 (5th Cir.), vacated on other grounds, 423 U.S. 3 (1975), remanded, 546 F.2d 26 (5th Cir. 1977); Foster v. Day & Zimmerman, Inc., 502 F.2d 867 (8th Cir. 1974); Bailey v. Atlas Powder Co., 445 F. Supp. 374 (W.D.Pa. 1978); Clay v. Ensign - Bickford Co., 307 F. Supp. 288 (D. Colo. 1969). Although 3M could theoretically be sued for damages arising from the use of taggants, it intends to disclaim all liability for their use in explosives. See Letter from David M. Gleason to Sen. Jacob Javits (May 18, 1979). This disclaimer would legally insulate 3M against all damages resulting from the use of taggants in explosives. Restatement (Second) of Torts §402A, comment m; U.C.C. §2-316; Idaho Power Co. v. Westinghouse Elec. Corp., 7 Prod. Safety and Liab. Rep. 492 (9th Cir. 1979); Keystone Aero. Corp. v. R. J. Enstrom Corp., 499 F.2d 146 (3d Cir. 1974).

9/ Aerospace/DuPont Agreement, supra note 7, at cl. 3.18.

to twenty customers.[10/] Customer participation was purely voluntary because in order to test the traceability of taggants the customer was required to keep records of the taggant codes received. Thus, the inference that the explosives industry was glutting the market with tagged explosives is invalid. In actuality only 2.4% of a limited number of cap-sensitive explosive products was distributed to a miniscule number of our customers - with all liability and cost for the program being borne by Aerospace Corporation.

IME member companies will continue to participate in experimental programs because it is in our interest as well as the public's to enhance the utility of our product; however, we cannot and will not be cavalier about safety. Moreover, our participation should not be inferred as carte blanche endorsement of the conclusions drawn from that experiment by Aerospace Corporation, BATF, or others.

10/ Id. at cl. 3.17.

2. Are you aware of any test that has ever been conducted, which shows the current 3M taggant, the one used during the pilot test to tag some 7 million pounds of explosives, to be unsafe?

Response

This question reasons from two false assumptions, each of which will be addressed below.

a. FALSE ASSUMPTION #1: Taggants should be used unless they are proven unsafe.

As we discussed in our answer to question 1, the hazardous nature of the explosives industry necessitates the contrary presumption in the public interest: taggants should not be used unless they are conclusively proven safe. At the present time, taggants have been tested in only one type of explosive product - cap-sensitive explosives. These tests were conducted under experimental conditions. Thus, regardless of whether the test results were encouraging, they should not be accepted as conclusive proof that all cap-sensitive explosives, or any other type of explosives, can be safely manufactured, transported, stored, and used with taggants under all possible conditions. The participants in the Pilot Program unanimously concur in this conclusion:

- DuPont: The Pilot Program was "of an experimental and exploratory nature . . . . [O]ur research did not include other commercial explosives, where increased hazards . . . could result from the use of taggants." [11/]

11/ Letter from A. B. Oppermann to G. R. Dickerson (April 20, 1979), reprinted in Testimony of David M. Gleason on Behalf of the Institute of Makers of Explosives on S.333 Before the Governmental Affairs Committee of the United States Senate Attachment D (May 7, 1979).

° Atlas Powder Co.: The Pilot Program results "are very limited in scope, and it would be irresponsible to think that this test could prove the safety of an experimental program."12/

° Hercules Incorporated: The Pilot Program tests "were not adequate to support the conclusion that taggants can be safely introduced into the mass production of explosives."13/

These conclusions, based on experience and expertise in the manufacturing of explosives, make it abundantly clear that the initiation of a nationwide tagging program based on current knowledge would launch the explosives industry onto a sea of uncertainty where the potential dangers are very great -- and very real.

b. FALSE ASSUMPTION #2: The taggants used in the pilot program will be used in the proposed national tagging program.

The taggants used in the pilot program were standard 3M microtaggants encapsulated in polyethelene.14/ Curiously, however, Aerospace has reached the illogical conclusion that

12/ Letter from H. Joseph Burchell to G. R. Dickerson (May 3, 1979), reprinted in id. at Attachment C.

13/ Letter from W. D. Cashin to G. R. Dickerson (May 4, 1979), reprinted in id. at Attachment E.

14/ Letter from L. J. Hessburg to Hon. Glenn Anderson 1 (March 14, 1979), reprinted in Statement of Dr. Robert Moler, supra note 5 at Attachment 1, Appendix A. The abstract for the pilot program envisioned testing both encapsulated and unencapsulated taggants, Fuller, Pilot Test for Identification Tagging of Packaged, Cap-Sensitive Explosives 484 (undated), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment C; however, even a cursory examination of the program results discloses that no such distinction was made. Consequently, any attempt to compare the safety characteristics of encapsulated and unencapsulated taggants is wholly unfounded.

because encapsulated taggants were tested in the pilot program, unencapsulated taggants can safely be used in all explosives.15/ Thus, the question's premise is inaccurate.

We believe that Aerospace's unfounded conclusion that unencapsulated taggants are safe not only typifies its treatment of the safety question, but it evinces a horrifying lack of appreciation for the inherent dangers of producing, transporting, storing, and using explosives.

Another example of this disregard for the safety question occurred with the proposed tagging of powders. When IME demonstrated that taggants could be easily removed from powders, Aerospace suggested that a variety of materials could be added to the taggant to mask them without ever considering the safety question involved in adding these foreign materials to the taggants.16/ Moreover, the tagging of propellant powders has never been tested in a pilot program, and the only manufacturer of black powder (GOEX, Inc.) concluded that due to the deficiencies and limited nature of Aerospace's tests, "GOEX cannot endorse the addition of taggants into black powder due to the unresolved questionable safety hazards."17/

15/ The Aerospace Corporation, Explosives Tagging Inflation Impact Analysis 6 (April 1979), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment I.

16/ See, e.g., The Aerospace Corporation, supra note 15, at 10.

17/ Letter from F. L. Fahringer to Hon. Glenn Anderson (May 7, 1979).

For these reasons, we believe that the tests necessary to establish the safety of taggants with an acceptable level of certainty have not been performed.[18/] We also believe that, by making safety the stepchild of its testing program, Aerospace and BATF have grossly distorted the role of safety in the nation's most safety-conscious industry. Most ominously, by placing its narrow law enforcement goals above those of public safety, BATF may be subjecting the public to a wholly different and equally unacceptable type of "bombing" - premature detonations of tagged explosives.

13/ We are also concerned that BATF has performed insufficient tests to conclude that taggants will survive and are recoverable in real-world detonations of all types of explosive products. Our concern is predicated on the reasonable assumption that there are significant differences between explosives detonated under laboratory conditions (e.g. in a sand-filled bunker) and under the conditions of a criminal bombing (e.g. an automobile or a building). In the latter, while the taggants may survive the explosion, either the taggants or their color coding may be destroyed by the intense heat of an ensuing fire. Additionally, all types of explosives products must be tested and proved adequate lest terrorists circumvent the tagging program by using explosives whose taggants do not survive. The much-publicized "McFillin Bombing" does not alter these conclusions. See note 1 supra.

To assuage our fears we filed a broadly-drafted Freedom of Information Act Request (which requires full disclosure of all records) with BATF in our attempt to locate the factual basis for this conclusion. Letter from Alan B. Mollohan to Paul Mosny (May 23, 1979). BATF's response showed that comprehensive real-world survivability and recoverability tests have not been conducted with any type of explosive product. Letter from Paul Mosny to Alan B. Mollohan (June 27, 1979).

3. You testified that taggants were unsafe because they would constitute "unknown" foreign substances added to potentially dangerous explosive powders.

   a. Are materials such as bagasse (crushed ground sugar cane residue) ever used as carbonaceous material for dynamites? What are the specifications used for allowable grit content for such materials? Will you provide for the record copies of such specifications?

   b. Are materials such as glass beads ever added to explosives during manufacture? If so, is not this type of material gritty?

   c. Are you aware of any specific test which shows the current 3M taggant, the one used in the pilot test, to be gritty?

   d. How do you eliminate the hazard of using gritty and abrasive ammonium nitrate prills in dynamite?

   e. It is our understanding that taggants do not increase the sensitivity of explosives to friction-induced detonating. How do they present a friction source in production machinery?

Response

a. Bagasse

Bagasse has been used as a low density carbonaceous filler in a limited number of dynamites since the early 1940's. It is currently used only in a small number of the less-sensitive permissible dynamites. It is not used in more sensitive dynamites, e.g. gelatin nitroglycerine, because its grit content makes it a potential safety hazard.

The grit content of bagasse arises from dirt particles cles attached to the sugar cane stalk. Bagasse manufacturers use an air separator to blow the low density bagasse away from the heavier grit particles. The specifications require a grit

content of less than 1%, which is stringently monitored. Shipments have been rejected for failing to meet these specifications. After receiving the bagasse, it is dried to reduce the moisture content. This process reduces the grit content to approximately 0.5%. The highest concentration of bagasse used in permissible dynamite is 10%; although the average concentration is much lower. Moreover, as noted above, in many explosive products the grit specifications are much more stringent.

As requested, a record copy of one company's purchase specifications may be found on page 17:

b. Glass Beads

Glass beads are used in a limited number of inherently stable slurry mixtures. These beads could be considered "gritty." They are used in the slurrys that are of sufficient stability to tolerate the glass beads without hazard. They are banned from use in nitroglycerine dynamites and other more sensitive explosives because their grittiness would create a substantial safety hazard.

19/ Shipments of bagasse normally contain grit concentrations far lower than the specifications. For example, the average grit content of the bagasse received by Atlas Powder Company during the last year was .29%.

c. Grittiness of the Current 3M Taggant

As discussed in question 2, pp. 11-12 supra, the current 3M taggant was not used in the pilot program. Furthermore, as discussed in question 2, pp. 10-11 supra, the correct question here is whether the 3M taggant - whichever one BATF/Aerospace decides to use - has been adequately tested for all aspects of safety, including grittiness. The answer to that question is (as before) - No, it has not.

d. Ammonium Nitrate Prills

The ammonium nitrate prills used in certain explosive products are of a higher grade than those used in agriculture as fertilizer. They have been used in explosives since the 1940's and they are neither gritty nor abrasive. If they were, they would not be used.

e. Friction

Your "understanding" is incorrect. As discussed at pp. 6-7 supra, sufficient real-world commercial testing has not been conducted to determine whether taggants increase the sensitivity of explosives to friction-induced detonating or whether they present a friction source in production machinery.

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3/11/76
SUPERSEDES
2/19/64

STANDARD MATERIALS MANUAL
-17-
ATLAS POWDER COMPANY

TRADE NAME: Bagasse

ORDERING DESCRIPTION: Bagasse

USING PLANTS
1 Reynolds, Pa.
2 Atlas, Mo.
3
4

NAME OF SUPPLIER	QUANTITY MINIMUM	UNIT	DIFFERENTIAL
McCarthy Sales Co., Inc. 1114 Carondelet Bldg. New Orleans, La. 70130	C/L (21,000)	LB.	

SHIPPING POINTS
1 Glenwood (Minsons), La.
2
3
4

PACKAGING: Bags Multiwall Paper

FREIGHT CLASSIFICATION: Dehydrated Sugar Cane Pith

PROPERTIES	METHOD	SPECIFICATIONS ATLAS	SPECIFICATIONS SUPPLIER
SCREEN ANALYSIS			
% x USS #12			100
% x USS #40 (Max)			30
% x USS #60 (Max)			10
Moisture (% Max.)			10.0
Density - g/cc (Max) Atlas Bagasse Densimeter			.120
Grit % Max. in Sample - 100% finer than USS #20			1.0

NOTE: THIS IS THE SAME SPECIFICATION AS USED BY JOINT AGREEMENT WITH HERCULES.

For use as a low density absorbent and fuel in nitroglycerin dynamites and solar

4. We understand ATF recommends the concentration of taggants be limited to 0.05% of the explosive substances.

   a. Does the industry control the quality and composition of each ingredient used in explosives to 0.05%? How is this accomplished?

   b. If it is not done, does the industry routinely carry out all the safety tests under all possible conditions of manufacturing, handling, transportation, and use each time a different source of supply or minor variation in composition is used?

Response

a. Quality and Composition Control

All ingredients are constantly monitored for both quality and composition. Only certain critical ingredients are stringently controlled to a 0.05% level. For example, nitroglycerine is purified below the 0.05% level to remove excess acids which generate heat and thereby detonate the explosive. Similarly, critical mixtures such as water gels are strictly controlled to prevent "gassing" (which would inflate the cartridge) and similar reactions.

Meeting these rigorous levels of quality control requires time, expertise, and experience with the products and processes. A detailed explanation would require comprehensive engineering analyses which we would be happy to provide on request.

Given the present state of the art, we consider taggants to be "critical materials" because they are foreign substances introduced into carefully balanced mixtures. While quantitatively they may appear to be "insignificant" at a 0.05% concen-

tration, qualitatively they have the potential to cause a serious imbalance in the explosive product. Eyebrows may be raised when we assert that such a seemingly small amount of an ingredient could cause a serious problem; however, in the explosives industry any problem has potentially catastrophic consequences. For example, dropping a seemingly insignificant lighted match into a vat of nitroglycerine would cause an extremely powerful explosion. The same must be assumed for any foreign substance introduced into a volatile mixture: you assume it to be a lighted match until proven otherwise.

b. Safety Tests

Safety tests are performed every time a different source of supply is used until there is satisfaction that the new source of supply is safe. The number and type of tests performed will vary according to several factors, e.g., the experience with the supplier, the characteristics of the item supplied, the unique safety problems that may be associated with the item (e.g. grittiness), and whether that item is a "critical material." The quality and composition of all raw materials are also constantly monitored.

Conversely, if there is a minor variation in composition an explosives maker would be less likely to perform comprehensive tests. Whether a variation is "major" or "minor" would, as illustrated by our match head analogy, depend upon the qualitative and not necessarily the quantitative aspects of the change. It would also depend on experience with the product and the other

factors enumerated above.

From this perspective taggants are a major variation. They have never been used in commercial explosives under real-world production, transportation, storage and use conditions. See pp. 6-7 supra. They have not been thoroughly tested for safety. See pp. 10-11 supra. Thus, comprehensive tests must be conducted before making any commitment to place taggants in any explosive products.

5. IME expects the tagging program to result in burdensome recording requirements.

   a. What additional recordkeeping burden, if any, would the tagging program place on the retailers and legal consumers of black powder and other explosives? Please be as specific as possible.

   b. You stress that much care and double checking would be required for recording tag codes and that a casual error in recording the code could not be tolerated. Is it not true that a casual error in recording the present date shift code is equally intolerable and would have an equally devastating effect on an attempt to carry out a trace?

Response

a. Recordkeeping Burden on Retailers and Consumers

The Bureau of Alcohol, Tobacco, and Firearms, with Congressionally-appropriated tax dollars, hired a consultant (Aerospace Corporation) to prepare a thorough assessment of the expected costs of a national tagging program.[20/] In that analysis, Aerospace overlooked the additional recordkeeping costs to the consumer and retailer of a national tagging program. We do not believe that industry should be responsible for ameliorating the deficiencies of BATF-approved work. Thus, although we can isolate problem areas, we cannot be responsible for commissioning our own study to remedy BATF's ills.

Although we cannot quantify the additional recordkeeping costs to retailers and consumers, we can generally say that the recordkeeping requirements for all links in the distribution

20/ The Aerospace Corporation, supra note 15.

chain will be increased. For example, under a national tagging program, retailers would be required to:

- Compare the taggant lot numbers with the bill of lading with greater frequency.
- Classify each explosive product by type and taggant lot number to facilitate locating records. 21/
- Expand storage space for the increased number of books and records.
- Increase the time to locate the proper product and taggant lot number at sale (due to the greater number of records that must be searched).

The cost of the additional time and decreased productivity involved cannot be estimated without a major industry-wide task/time study; however, the costs will obviously be greater than those under the date/shift code program because there will be far more taggant lot numbers to follow than there are date/shift codes. If the date/shift code is applied to production runs of approximately 100,000 pounds and tagging codes are changed after batches of 2,000-20,000 pounds,[22/] the recordkeeping requirements for tagged explosives would be increased by at least 500%. The costs would increase accordingly. See generally pp. 43-50 infra.

b. Effect of Clerical Error in Recording Taggant Codes

It is axiomatic that any clerical error in a recording system is intolerable, and we have never stated otherwise. Our concern is that the taggant code system inherently presents many more opportunities for making clerical errors than does the

21/ This could also be accomplished by cross-indexing to the date/shift code.

22/ See p. 44 infra (column headed "Tagging Level").

date/shift code system.[23] Thus, minimizing these opportunities for error would require a greater degree of care and double checking.

The date/shift code is stamped onto each cartridge casing by a rubber die as the paper is fed to the cutter from a large roll. Clearly, no recording error can be made at this stage of the production process. The recording requirements for taggants, and thus the chance for errors, would begin much sooner:

- Taggant lot numbers must be recorded as received.
- Taggant lot numbers must be verified against the contents of the box. This would require microscopic examination of the taggants.
- Taggant lot numbers must be inventoried after verification and stored under security conditions to prevent contamination.
- Taggant lot numbers must be verified as they are removed from the storage areas.
- Taggant lot numbers must be verified as they enter the mixing process.

All these steps present a possibility of a recording error that is not present with the date/shift code. Most critically, a recording error made prior to inserting the taggants into the explosive mix cannot be detected or rectified after the taggant is mixed into the explosive because the only means of verifying the taggant code in the explosive is by microscopic examination of the taggant itself.

23/ It is impossible to estimate the number of errors in recording the date/shift code that occur throughout the distribution chain because the annual number of traces is statistically insignificant when compared to the total amount of explosives produced.

Several other factors will naturally tend to increase the probability of errors in recording the taggant code:

- The date/shift code remains constant throughout an entire production run. Assuming a 100,000 pound run, the taggant code will change at least 5 times during each run. Each change increases the probability of making a recording error.
- The date/shift code has fewer letters and digits than the taggant code. It is axiomatic that the frequency of recording errors will increase as the number of digits recorded increases.

For these reasons we are concerned that the degree of quality control necessary to ensure a reasonable number of recording errors will be vexatious, burdensome, and expensive in terms of both capital expenditures and lost productivity. See pp. 43-50 infra.

6. Does the date shift code currently used by the industry truly reflect the precise date and shift of manufacture, or is it merely used to define a given lot of production even though this production may span several shifts?

Response

Several methods are used to stamp the date/shift code onto an explosive's casing. In one type of process the date/shift code is stamped onto the casing as the paper is unrolled (prior to cutting) and contemporaneous with the loading of the powder into the casing. With this type of process the date/shift code accurately reflects both the date and shift during which the product was produced.

In the second type of process, the date/shift code is stamped onto the wrappers expected to be used during the day and shift prior to a production run. Occasionally, production levels fall short of projections, thus leaving an excess of stamped wrappers. Rather than discard these or re-stamp them (which would increase the chance of error due to blurring, unstamped wrappers, etc.), they are used shortly thereafter on the next appropriate production run. This has no effect on traceability because the date/shift code on the wrapper is recorded; thus providing us with the information required to conduct a trace: place of manufacture, type of product, and purchaser.

7. What makes rework material a particularly hazardous material compared to the same material prior to rework?

Response

The hazardous nature of rework material is not appreciably different from that of the same material prior to rework. We have never stated otherwise. Our concern is that the disposal of rework material presents a potential safety hazard and the use of taggants in explosives indirectly increases that risk.[24/]

Currently, some of our production is reworked due to some defect encountered during the production process. For example, a shell machine may "bruise" or dent the product. Under current practices these deficient products would be pulled from the line and stored in a magazine until the next production run of that product - at which time the explosive material in the product would be added to the mix and "reworked." If this product were tagged, however, some rework material may not be used because the taggants contained therein might contaminate the unique taggant code of the new mix. Therefore the rework material would have to be destroyed.

24/ See Testimony of David M. Gleason, supra note 11, at 4-5.

8. The cost estimates of using explosive taggants are grossly disparate. For example, in a letter to the Committee, 3M, the manufacturer of the taggants, says it will charge a maximum of $40 per pound of taggants. IME says the cost will go to $200 per pound. Total annual cost of the program is put at $40 million by Aerospace, and $490 million by IME. How do you explain these discrepancies?

Response

We are acutely aware of the gross disparities in estimated costs, disparities that are great enough to imperil our credibility before the Committee. We are concerned, however, that the only cost estimates prepared for BATF have been done by those who have strongly advocated taggant development for years. We are particularly concerned that these figures not only ignore the current market price for taggants, but are based on estimated prices supplied by 3M -- the only BATF-approved supplier of explosive taggants. Of course, we are not suggesting that Aerospace and 3M have falsified or otherwise altered the cost figures in any way. We suggest only that 3M's potential position as a legislatively-sanctioned monopolist raises very serious questions about the future pricing of taggants that have not been satisfactorily answered. We will address the Committee's questions from this perspective.

a. Price per Pound

The disparity in the price per pound of taggants has not resulted from Aerospace's "deflating" the projected prices nor from

our "inflating" the figures. It has arisen from two grossly disparate estimates supplied by 3M.

In a letter to Mr. Howard McDanel of the Austin Poweder Company dated January 31, 1979,[25] 3M enclosed its current sales brochure for microtaggants. In a section entitled "Price List," 3M quoted a price of $200 per pound for code lots of up to 49 pounds.[26] A recent check with 3M's sales representatives confirmed that these are current market prices. When we prepared our estimate, we made the eminently reasonable assumtion that the taggants would be sold to us at a price no less than the current market price. Aerospace, on the other hand, relied on a $25-40 per pound price range quoted by 3M in a letter from L. J. Hessburg to Hon. Glen Anderson dated March 14, 1979.[27]

25/ Reprinted in Testimony of David M. Gleason, supra note 11, at Attachment B.

26/ The $200 per pound price figure was used instead of the other prices quoted in the sales brochure because it corresponds with the code lot size range (.0016 to 5 lbs.) recommended by Aerospace. The Aerospace Corporation, Explosive Tagging Inflation Impact Analysis 7 (April 1979) (under column headed "Taggant Batch Size"), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment I. This is an ultraconservative figure because 3M does not sell taggants in lots less than 5 pounds in today's market. Lloyd D. Lea, supra note 11, at Enclosure p. 3.

27/ Reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment I, Appendix A. See the Aerospace Corporation, supra note 15, at 6. Although it is not at all clear, Aerospace's price analysis reflects 3M's estimated maximum price of $40 per pound. The price paid by Aerospace for the taggants during the pilot program, $49 per pound, reflects encapsulated taggants, whereas 3M's $25-40 estimate apparently reflects prices for unencapsulated taggants (i.e. those currently marketed). On the assumption that encapsulated taggants will not be required by BATF, Aerospace used the latter estimate to compute the final cost figures. Id. at 6-8; see pp. 11-13 supra.

Thus the real question here is not how IME can explain the disparity in estimated prices, but whether 3M has adequately explained how the price of taggants would be reduced 500-800% below the current market price. We do not believe they have.

This tremendous price reduction is defended by 3M on several grounds. First, 3M tells the Committee that the taggants currently marketed do not have a polyethylene coating, whereas those used in the pilot tagging program were coated. From this 3M attempts to infer that coated taggants are less expensive to produce than uncoated taggants and, therefore, the price for coated taggants would be lower than the uncoated taggants currently marketed.[28/] IME is aware that economics is an imprecise science, but we know of no theory that explains how the addition of an item to a product reduces its per unit production cost. Thus, regardless of whether coated or uncoated taggants are used in the program, the current market price for uncoated taggants ($200) must be the lowest possible price.

Second, 3M asks the Committee to accept its novel economic theory of the "Benevolent Monopolist." It is beyond question

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28/ L. J. Hessburg, supra note 14, at 1. As discussed supra pp. 11-13 and p. 28 n. 27, Aerospace states that polyethelene encapsulation is no longer necessary. Since unencapsulated taggants were not tested in the pilot program, we believe this assumption evinces a cavalier disregard for the potential hazards of the explosives industry, particularly since a polyethelene coating was necessary "to provide an ablative coating and to minimize the absorption of explosives ingredients." The Aerospace Corporation Description of the Pilot Program, Appendix A (undated).

that 3M is the only producer of identification taggants that has survived the stiff competition to produce taggants that meet BATF's "stringent" criteria.[29/] According to 3M, the supplier of a product who has achieved this monopolistic position will slash the current market price of its product because of economies of scale; however, the opposite is universally true: A monopolist has no such incentive to reduce prices.[30/] The Committee has no reason to believe that 3M would behave any differently.[31/]

Nevertheless, BATF suggests several reasons why 3M will keep prices reasonable.[32/] First, BATF tells the Committee that 3M will keep its prices reasonable because "[t]hey said so in writing."[33/] As businessmen or attorneys, we hope the Committee recognizes that

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29/ Statement of G. R. Dickerson, supra note 4, at 5.

30/ It must be kept in mind that 3M would not be a regulated monopoly such as a public utility. Instead, it would be a pure monopolist. As such it would have pricing powers as unrestrained as those of the OPEC cartel. We are not saying that 3M may never have an incentive to reduce prices: only that as an OPEC-like supplier its pricing policies will be set at a level that will freely exploit its guaranteed market. This in no way assures that the prices will be reasonable. Put simply - 3M will charge what the market (which is guaranteed) will bear. See C. McConnell, Economics: Principles, Problems, and Policies 485-87 (5th ed. 1972).

31/ The fact that 3M "sold" taggants to Aerospace for $49 per pound does not support this theory. There is no economic reason for 3M to "sell" its taggants to Aerospace for $151 per pound less than its advertised competitive market price. The only plausible reason is that 3M recognized the business advantages of "selling" taggants to Aerospace at an unrealistically low price. Thus, this "sale" price is an inaccurate guideline for 3M's future monopolistic pricing policies.

32/ Statement of G. R. Dickerson, supra note 4, at 5.

33/ Id.

unless 3M's "writing" is a signed contract with the buyers of taggants it does not guarantee that prices will, in fact, remain reasonable. BATF then tells the Committee that "natural economic forces" will inspire competition that will, in turn, keep taggant prices reasonable.[34/] This, too, is belied by both the facts and textbook economic theory. As BATF acknowledges, the "stiff competition" has already occurred, and 3M has emerged as the sole supplier of the product, i.e. it is the only supplier that can meet BATF's "stringent" taggant standards.[35/] 3M thus totally controls the expertise, processes, and facilities necessary to manufacture taggants for explosives. As long as taggant standards are stringent barriers to entering the market, other manufacturers (particularly those who have already failed) have little incentive to devote capital, manpower and resources to produce BATF - approved taggants --only to compete with a manufacturer (3M) who is already firmly ensconced in the market.[36/]

For those reasons, we are highly skeptical of 3M's Alice in Wonderland economics. Experience and reason both tell us that the only certain price for taggants is the current competitive market price of $200 per pound. To argue that $25-40 per pound is an accurate estimated price for the same product in a monopolistic market is belied by economic theory and business experience, and common sense.

34/ Id.

35/ Id.

36/ BATF also suggests that prices will be kept reasonable by the addition of a requirement to S.333 similar to section 308 of the Clean Air Act. This statute requires mandatory licensing of patents. It does not grant authority to dictate mandatory price controls on products sold to ultimate consumers. While price protection would be desirable to the explosives industry, such mandatory price controls are politically impractical.

b. Annual Cost

The annual cost of S.333 (as currently written) to the explosives industry has been grossly understated by Aerospace. We believe that a more realistic estimate is $703,000,000 each year.[37/] The components of this figure are discussed below and are tabulated on page 54.

1) Cost of Materials

The taggant price per pound discussed at pp. 27-31 supra, will significantly affect the total cost of the raw materials used in producing explosives. Based on all available data, we have calculated that the addition of taggants to explosives will add an additional $392,464,600 in raw material cost to explosives products. The cost estimates for the various types of explosives products are discussed below and are tabulated on page 40.

Cap-sensitive Packaged Explosives: Total annual production of cap-sensitive packaged explosives in the United States is 275 million pounds.[38/] During the pilot program, the taggant concentration in the explosives was 0.05% by weight. Aerospace now proposes to reduce this concentration to 0.025% by removing the polyethelene coating (which accounts for 50% of the taggant weight) from the taggants. As discussed in our response to question 2, see pp. 11-13 supra, because

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37/ This cost figure excludes costs associated with tagging smokeless powder. These have been excluded because smokeless powders are not used in commercial blasting - the area in which IME represents the explosives industry.

38/ In its calculations, Aerospace assumes a production level of 325 million pounds. This figure is inaccurate. Our analysis uses the more correct figure of 275 million pounds.

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uncoated taggants were not used in the pilot program and have not been thoroughly tested; Aerospace's suggestion that they should be used in a national tagging program evinces a cavalier disregard for the inherent hazards of the explosives manufacturing process. Thus, our analysis will assume a coated taggant concentration of 0.05% by weight as used in the pilot program.

With a taggant concentration of 0.05% by weight, one pound of taggants will be required for every 2000 pounds of explosives.[39/] Thus, if taggants are priced at $200 per pound, the cost of the taggants in each pound of explosives will be 10 cents.[40/]

This additional cost is frighteningly inflationary. The current cost of raw materials used in producing one pound of cap sensitive explosive is approximately 15 cents. Consequently, tagging cap sensitive explosives will increase raw material costs 66 2/3%. With an annual production level of 275 million pounds, the annual increased raw material cost for the taggants will be $27,500,000.

Cast Boosters: Cast boosters are extremely powerful explosives used to detonate noncap-sensitive packaged explosives and other blasting agents. Tests have shown that taggants in boosters have severe survivability problems.

39/ $\frac{1 \text{ lb. explosives}}{0.0005 \text{ lb. taggants}} = \frac{2000 \text{ lb. explosives}}{1 \text{ lb. taggants}}$

40/ (1 lb. taggants) x ($200) = (2000 lbs. explosives) x $(x) or 10 cents per pound.

Moreover, the feasibility of tagging these explosives in conventional production processes has not been tested. Consequently, we believe that both Aerospace's price projection for these taggants (which must be specially manufactured to insure even a modicum of survivability),[41/] and the projected tagging level are purely speculative. It is certain, however, that the price of these taggants will be considerably greater than those used in tagging cap-sensitive explosives simply because a more sophisticated taggant must be specially manufactured from more expensive materials.[42/] Rather than speculate, our analysis uses the artificially low minimum taggant price of $200 per pound.

Aerospace suggests tagging boosters at 0.1% by weight. Thus, one pound of taggants will be required for every 1000 pounds of explosives.[43/] Consequently, if taggants are priced at $200 per pound, the cost of taggants in each pound of explosives will be 20 cents.[44/] Since the cost of raw materials for boosters is 60 cents per pound, the addition of taggants will increase the cost of raw materials by 33%. With an annual production level of 6 million pounds, the annual increased raw material cost for the taggants will be $1,200,000.

41/ Statement of Dr. Robert Moler, supra note 5, at 9.

42/ Id.

43/ $\frac{1 \text{ lb. explosives}}{0.001 \text{ lb. taggants}} = \frac{1000 \text{ lb. explosives}}{1 \text{ lb. taggants}}$

44/ (1 lb. taggants) x ($200) = (1000 lb. explosives) x ($X) or 20 cents per pound.

Black Powder: As with cast boosters, tagged black powders have not been tested for compatability with the manufacturing process.[45] These taggants, however, must be specially manufactured to prevent a user from magnetically separating the taggants from the powder.[46] Thus, while any cost estimate is speculative, it can be said that the addition of demagnetizing or masking agents to these taggants will make them more expensive than the basic unencapsulated taggant.[47] Consequently, this analysis uses $200 per pound as a conservative minimum taggant price.

With a taggant concentration of 0.05% by weight,[48] one pound of taggants will be required for every 2000 pounds of powder.[49] If taggants are priced at $200 per pound, the cost of the taggants in each pound of powder will be 10 cents.[50] Since the cost of raw materials for black powder is 11 cents per pound, the addition of taggants will

45/ Statement of Dr. Robert Moler, supra note 5, at 8, 11. The only laboratory tests that have been completed on black powder were done with sporting grade black powder - a small percentage of the total commercial production. Boyars, Feasibility of Identification Tagging of Black Powder: Progress Report 21 (March 1979), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment G; see note 51 infra.

46/ Id. at 3; Statement of Dr. Robert Moler, supra note 5, at 10.

47/ See note 45 supra.

48/ The Aerospace Corporation, supra note 15, at 10.

49/ See note 39 supra.

50/ See note 40 supra.

increase the cost of raw materials by 91%. With an annual production level of 2.5 million pounds,[51] the annual increased raw material cost for the taggants would be $250,000.

Detonating Cord: As with cast boosters and black powder, the feasibility of tagging detonating cord in any conventional production process has not been tested. Moreover, the explosive material used in the core of the detonating cord is the highly sensitive, highly energetic PETN which would vaporize any known taggant.[52] Nevertheless, S.333 would require detonating cord to contain taggants.[53]

Aerospace grossly understates the annual production of detonating cord. According to Aerospace, 12 million feet of detonating cord are manufactured each year;[54] however, IME members actually produce nearly 500,000,000 feet

51/ Aerospace apparently only studied sporting grade black powder, the annual production level of which is 400,000 pounds. However, over seven million pounds of black powder is annually produced for commercial production. This figure is not reflected in the Bureau of Mines reports because black powder is not used in mining and quarrying. Instead it is used to make specialty explosives, e.g. jet tappers and perforators for the oil industry. Since these are "explosive materials" by definition, S.333 would require them to be tagged and the cost estimates should be adjusted accordingly. See note 53 and p. 38 infra.

52/ Detonating cord is also considered to have a "lower overall threat potential." Statement of Dr. Robert Moler, supra note 5, at 13. Of course, this assumes that other explosives have "threat potential" -- a premise we have consistently questioned. See pp. 3-4 supra.

53/ S.333 applies to "any explosive material." S.333, 96th Cong., 1st Sess. §303(b)(1979). The term explosive material means "explosives, blasting agents, and detonators." 18 U.S.C. §841(c).

54/ The Aerospace Corporation, supra note 15, at 15.

of commercially-marketed detonating cord annually.[55] Accepting Aerospace's estimate that approximately 2,600 pounds of taggants would be required to tag the 12 million feet of cord, we can calculate that 108,333 pounds of taggants would be required to tag 500 million feet of cord.[56] With taggants priced at $200 per pound, the annual increase in raw materials costs for detonating cord will be $21,666,600, or 4.3 cents per foot. This figure is greater than the value of all explosive products sold by the largest producer of detonating cord in the United States today! Since the cost of raw materials for detonating cord is 2 cents per foot, the addition of taggants will increase the cost of raw materials by 215%.

Blasting Caps: Like cast boosters, powders and detonating cord, blasting caps have not been tested for compatability, feasibility or safety.[57] Nevertheless, they are "explosive material" and under section 303(b) of S.333 they would be subject to mandatory tagging. Even Aerospace reluctantly admits that tagging caps will be very costly.[58]

55/ This number was derived by summing the production levels for the three domestic producers of detonating cord. Those production figures were supplied to IME on a proprietary basis.

56/ $\frac{\text{(2,600 pounds taggants)}}{\text{12 million feet}} = \frac{\text{(x pounds taggants)}}{\text{500 million feet}}$ or 108,333 pounds of taggants.

57/ Statement of Dr. Robert Moler, supra note 5, at 13.

58/ Id.

Aerospace suggests a tagging level of 50 mg of taggants per cap.[59] With taggants priced at $200 per pound, the cost of taggants in each cap will be 2.2 cents.[60] Since the cost of raw materials for caps is 20-30 cents per cap, the addition of taggants will increase the cost of raw materials by 7-11%. With an annual production level of 84 million caps, the annual increased raw material cost for taggants will be $1,848,000.

Noncap-sensitive Explosives: Noncap-sensitive explosives are those explosives requiring another explosive to achieve detonation. Despite the fact that 3.4 billion pounds of these explosives are commercially produced each year, Aerospace has opted to recommend taggants only in the booster charge that detonates the explosive because "the tagging of [noncap-sensitive explosives] would be a very expensive undertaking."[61] Unfortunately, S.333 allows no such latitude, for under section 303(b) it will be unlawful to manufacture, transport, distribute, or receive any untagged explosive material: which definition includes noncap-sensitive explosives. 18 U.S.C. §841(c). Any valid cost analysis must consider the legislation as written, because by conveniently ignoring the broad scope of the

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59/ The Aerospace Corporation, supra note 15, at 11.

60/ $\frac{\text{(50 mg)}}{\text{(1 cap)}} \times \left(\frac{.001 \text{ gm}}{1 \text{ mg}}\right) \times \left(\frac{1 \text{ kg}}{1000 \text{ gm}}\right) \times \left(\frac{2.2046 \text{ lb.}}{1 \text{ kg}}\right) \times \left(\frac{\$200}{1 \text{ lb. taggants}}\right) =$ $.022 per cap or 2.2 cents per cap.

61/ Statement of Dr. Robert Moler, supra note 5, at 12.

proposed law, Aerospace ignored the admittedly exorbitant cost of tagging the most common commercially-produced explosives. Since Aerospace and BATF have never studied the tagging of noncap-sensitive explosives, we can only guess at the necessary tagging level. A good conservative estimate would be the lowest taggant concentration found adequate by Aerospace: 0.05% by weight.[62] With this taggant concentration, one pound of taggants will be required for every 2000 pounds of explosive.[63] With taggants priced at $200 per pound, the cost of the taggants in each pound of explosive will be 10 cents.[64] Since the cost of raw materials for the most common noncap-sensitive explosive, ANFO, is 6.3 cents per pound,[65] the addition of taggants will increase the cost of raw materials by 159%. With an annual production level of 3.4 billion pounds, the annual increased raw material cost for the taggants alone will be a whopping $340,000,000.[66]

62/ Id.

63/ See note 39 supra.

64/ See note 40 supra.

65/ ANFO is a mixture of 6.6 lbs. fuel oil and 100 lbs. ammonium nitrate. The raw materials for this basic mixture cost $6.70. The cost for one pound is calculated accordingly: $\frac{(\$6.70)}{(106.6\ lb.)} = \frac{(x)}{(1\ lb.)}$ or 6.3 cents per pound.

66/ Even using the Aerospace/3M estimated taggant price of $40 per pound, the cost of tagging noncap-sensitive explosives would be $68,000,000.

3 OF 5

ANNUAL COST OF RAW MATERIALS
FOR TAGGING PROGRAM

Explosive Product Category	Total Taggant Cost	Current Cost of Explosive Raw Materials	Cost of Taggants Per Pound	Percent Increase in Raw Materials Cost
Cap-sensitive Explosives	$27,500,000	15 cents/lb.	10 cents	66 2/3%
Cast Boosters	1,200,000	60 cents/lb.	20 cents	33%
Black Powder	250,000	11 cents/lb.	10 cents	9[illegible]%
Detonating Cord	21,666,600	2 cents/ft.	4.3 cents/ft.	215%
Blasting Caps	1,848,000	20-30 cents/cap	2.2 cents/cap	7-11%
Noncap-sensitive Explosives	340,000,000	6.3 cents/lb.	10 cents	159%
TOTAL:	$392,464,600			

2) Code Renewal Fees

3M currently charges users of taggants a $100 annual code renewal fee.[67/] According to 3M, with an explosive tagging program the fee will neither be eliminated nor reduced: it will be included in the estimated taggant price of $25-40 per pound.[68/] Aerospace did not question this statement, and its Inflation Impact Analysis does not include cost reservation fees.

For several reasons, we believe it is unreasonable to exclude these fees from taggant program cost estimates. First, 3M is again asking the Committee to accept its "Benevolent Monopolist" theory. Again we ask: If the fee applies to current competitive market prices, what assurance do we have that the current renewal fee will be eliminated or reduced once 3M has a guaranteed market in which it is the sole supplier? For the reasons discussed at pp. 28-31 supra, we strongly believe that both economic theory and experience compel a negative answer to our question. In fact, they tell us that we have every reason to believe that the renewal fee will remain at $100 per year.

3M's rationale is even less believable for a second reason: the renewal fee could not possibly have been

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67/ Lloyd D. Lea, supra note 11, Enclosure at p. 3.

68/ L. J. Hessburg, supra note 14, at 2.

absorbed in the estimated taggant price.[69/] Under its current pricing policy, 3M's taggant price includes the first year's reservation fee; and we do not dispute that this fee could be included in a $25-40 per pound taggant price. We are concerned solely with the $100 annual renewal fee; which, since a code must be reserved for ten years, amounts to an additional $900 per code lot.[70/] If 3M charged $25-40 per pound with a taggant lot size of 5 pounds (the maximum size projected by Aerospace),[71/] each lot would cost $125-200. 3M is asking the Committee to believe that in this one-time payment, 3M recovers $900 worth of code reservation fees, raw material costs and production costs! We are aware of economies of scale, but the magnitude of alleged savings here makes such an explantion implausible.

For these reasons, we believe that a realistic cost analysis must include the $100 annual renewal fee per code over the 10 year reservation period that is currently charged by 3M in the competitive market. Thus, after the

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69/ See notes 30-31 supra and accompanying text.

70/ Statement of Dr. Robert Moler, supra note 5, at 8. Although the total lot reservation fee would be $1000 ($100 per year x 10 years), $100 is already paid in the price of the tags itself. Thus, the amount of reservation fees would be $1000 - $100 or $900 per lot over a 10 year period.

71/ The Aerospace Corporation, supra note 5, at 7 (Table 3-1, column headed "Taggant Batch Size").

10th year of the tagging program (the year when all possible lots are being renewed), the explosives industry will be paying 3M $291,131,000 annually in renewal fees alone. The fees for each explosive product category are tabulated on the following page.

3) Recordkeeping Costs:

Aerospace estimates the annual increased recordkeeping costs associated with tagging as $1,236,000.[72/] We believe this number is an unrealistic representation of recordkeeping requirements that will inundate the explosives industry in an ocean of paperwork. Based on past experience, we believe that a realistic figure would be $19,497,500. The basis for this figure will be discussed below according to the type of explosives produced.

Cap-Sensitive Packaged Explosives. Aerospace asserts that the only additional recordkeeping cost from tagging cap-sensitive packaged explosives would be an additional entry on currently-existing records, which would cost $900,000 or .27 cents per pound of explosives.[73/] This estimate not only understates the cost of making "additional entries" but it naively characterizes this as the singular component of recordkeeping cost.

72/ This figure was calculated by summing the figures in The Aerospace Corporation, supra note 15, at 19-22: $900,000 (cap-sensitive explosives) + $330,000 (smokeless powder) + $6,000 (black powder) = $1,236,000.

73/ $\frac{(\$900,000)}{(325,000,000 \text{ lbs})}$ = $.0027 (or .27 cents) per pound.

ANNUAL COST OF RENEWAL FEES
IN 10TH YEAR OF TAGGING PROGRAM

Explosive Product Category	Annual Production [a]	Tagging Level [a]	Total Number of Codes Required Annually [b]	Renewal Fees in 10th Year [c]
Cap Sensitive Explosives	275,000,000 lbs. [d]	20,000 lbs. [e]	13,750	$12,375,000
Cast Boosters	6,000,000 lbs.	2,000 lbs.	3,000	2,700,000
Black Powder	2,500,000 lbs. [d]	5,000 lbs.	500	450,000
Detonating Cord	500,000,000 ft. [d]	5,000 ft.	100,000	90,000,000
Blasting Caps	84,000,000 units	2,381 caps	35,279	31,751,000
Noncap-sensitive Explosives	3,419,000,000 lbs. [f]	20,000 lbs. (est.)	170,950	153,855,000
			TOTAL	$291,131,000

a/ Based on data in The Aerospace Corporation, supra note 15, at 7 (Table 3-1).

b/ Derived by dividing "Tagging Level" into "Annual Production".

c/ Derived by multiplying "Total Number of Codes Required Annually" by $900.

d/ IME figure. See notes 37, 51, 55 supra and accompanying text.

e/ Aerospace has also stated that a tagging level as low as 10,000 lbs. may be necessary. Statement of Dr. Robert Moler, supra note 5, at 7. If this figure was used, 27,500 codes would be required each year and the 10th year renewal fees would be $24,750,000.

f/ This figure includes: 3,150,000,000 lbs. ammonium nitrate prills and prill products; 269,000,000 lbs. noncap-sensitive slurries and water gels.

The cost of making "additional entries" will be substantially more than .27 cents per pound. The cost of complying with date/shift code regulations has been 1.25 cents per pound of explosives. Aerospace never refutes this figure: it merely asserts that since tagging will only require filling-in an additional blank on the date/shift form, the additional cost will be nominal. The problem with this reasoning is that it assumes an equivalency between the number of code lots used and the production run (which is the basis for the date/shift code). This is simply not true. For example, a 100,000 pound production run with a unique taggant code every 20,000 pounds requires 5 separate markings. As a result, records cannot be kept by production run, but they must be categorized by taggant code because each production run will have a variety of codes. Thus, one form will not have five additional markings. Instead, five separate forms will be required -- all of which must be filled-out. For this reason we believe that Aerospace's cost estimates reason from a flatly erroneous premise.

-Aerospace's cost estimates are defective for a second reason: they assume that the only costs incurred are in marking the explosive and recording those markings for posterity. This, too, is belied by common sense. Recordkeeping costs include:

- "Front End" Costs: i.e. "the explosives manufacturer must acquire the taggant, store, and inventory it."[74] These costs are not incurred under the date/shift code system. They are enumerated in our answer to question 5(b), pp. 22-24 supra.
- Product-recording and Marking Costs: These are discussed at P. 45 supra and are the only costs even nominally considered by Aerospace.
- Storage and Retrieval Costs: As Aerospace notes, the recordkeeping requirements will generate a "substantial" volume of records that must be stored, catalogued, and monitored.[75] Additionally, if bombing is a substantial problem and if the taggants are recoverable we should expect to be innundated with retrieval requests which, of course, will incur additional costs.

Nevertheless, Aerospace offhandedly assumes these activities require no additional expenditures! This arbitrary and presumptuous dismissal of readily-apparent cost factors typifies Aerospace's treatment of the entire cost issue and raises grave questions about the entire Inflation Impact Analysis.

For these reasons, we believe that the recordkeeping costs for a tagging program must, at a minimum, equal the 1.25 cents per pound incurred under current recordkeeping requirements. In fact, we believe that these costs will

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74/ The Aerospace Corporation, supra note 15, at 14.

75/ Id. at 17.

realistically approach 2 cents per pound.[76] Thus, annual recordkeeping costs for cap-sensitive explosives should range from $3,440,000 to $5,500,000.

Cast Boosters: Curiously, Aerospace provides no cost estimate of the recordkeeping costs for cast boosters.[77] GOEX, Inc. which is conducting a pilot test of boosters, has estimated a 2 cent per pound recordkeeping cost.[78] Using our 1.25 cent per pound figure as a bottom-line and an annual production level of 6 million pounds, the recordkeeping costs should range from $75,000 to $120,000.

Black Powder: Aerospace estimates the annual recordkeeping costs of tagging black powder at $6,000 (1.5 cents per pound).[79] These figures may be overly conservative; however, for the sake of argument we will assume 1.5 cents per pound as a reasonable bottom line figure. Nevertheless, as discussed at note 51 supra, Aerospace's production figures assume that only sporting grade black powder

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76/ This is due, in part, to the fact that the recordkeeping costs ignored by Aerospace are precisely those costs not incurred in the date/shift code program, e.g. the costs of acquiring, storing and keeping inventory on taggants. See pp. 22-24 supra.

77/ Instead it assumes an additional manufacturing cost of $400,000 despite its admission that there is no known process to add taggants to boosters. This faith in American know-how is commendable, but faith alone does not provide a sound basis for a cost estimate. See The Aerospace Corporation, supra note 15, at 19.

78/ Letter from David Levey, President, GOEX, Inc. to Alan B. Mollohan, Esq. 2 (July 11, 1979).

79/ The Aerospace Corporation, supra note 15, at 21-22.

will be tagged. This ignores the remaining 2.1 million pounds of black powder produced and used for commercial purposes. Thus, the recordkeeping cost for tagging all black powder will be $37,500.

Detonating Cord: As with cast boosters, Aerospace provides no cost estimate of the recordkeeping costs for detonating cord.[80] As discussed at pp. 45-46 supra, recordkeeping costs for a tagging program will exceed those incurred in the date/shift program due to front end and storage and retrieval costs. Recordkeeping costs for detonating cord will be even greater. Currently, detonating cord productic achinery produces hundreds of thousands of feet of detonating cord on each production run. This cord is wound onto large reels, from which it is cut and shipped to millions of customers. Aerospace proposes to change the taggant lot after the ridiculously low level of 5000 feet.[81] Keeping track of the start/end point for each taggant lot as well as the customers who receive the cord when it is unwound from the reels will be a Herculean

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80/ The figure supplied by Aerospace represents the annual cost of the estimated manpower necessary to operate a tagging station. Id. at 22.

81/ Id. at 7 (column headed "Taggant Level"). This will also create a substantial loss of productivity. See pp. 50-53 infra.

task. Thus, the costs will grossly exceed costs incurred under the date/shift code.[82/]

The current recordkeeping costs for detonating cord are .05 cents per foot. Thus, a very conservative minimum figure of the costs to keep track of the records required for an annual production level of 500 million feet of cord is $250,000.

Blasting Caps: As with cast boosters and detonating cord, Aerospace provides no estimate of the recordkeeping costs for blasting caps;[83/] and, as far as the Committee knows, they may never have considered the question.

The current recordkeeping cost for blasting caps is 1 cent per cap. Since, as discussed at pp. 45-46 supra, we can reasonably conclude that total recordkeeping costs for the tagging program will at a minimum equal those under the date/shift code program, the recordkeeping costs for tagging 84 million blasting caps should, at a minimum, be $840,000.

Noncap-sensitive Explosives: As it has throughout the Inflation Impact Analysis, Aerospace has ignored the cost impact of tagging what it characterizes as the most

82/ Currently each detonating cord production facility requires three full time employees simply to keep track of the date/shift code as the cord is unwound from the reels and prepared for shipment.

83/ The cost figures supplied by Aerospace pertain to production machinery and not recordkeeping. See The Aerospace Corporation, supra note 15, at 22.

common commercially-produced explosive.[84/] Most importantly (as shown by the figures) the tagging of noncap-sensitive explosives has substantially increased the estimated costs of the tagging program.[85/]

The current recordkeeping costs associated with placing the date/shift code on noncap-sensitive explosives is .375 cents per pound. As discussed at pp. 45-46 supra, this figure represents a conservative estimate of the recordkeeping costs associated with tagging. Since 3.4 billion pounds of noncap-senstive explosives are produced annually, the recordkeeping costs associated with tagging these explosives are approximately $12,750,000.

4) Unquantified Manufacturing Process Costs

As with recordkeeping costs, Aerospace glibly assumes that the costs to incorporate taggants into the manufacturing process will be de minimis. The shallowness of their analysis is illustrated by the length of the discussion of manufacturing costs -- the equivalent of one full page.[86/]

84/ Statement of Dr. Robert Moler, supra note 5, at 12; see p. 38 supra.

85/ Many of these explosives are inexpensive, bulk products sold to large users of explosives, e.g., surface miners. There is a very real probability the cost increases associated with the addition of taggants to these (as well as other) products will make it cheaper for industrial consumers to prepare their own mixes of these products. This would drive many small manufacturers out of business and would force the remaining manufacturers to escalate the cost of their products to compensate for the loss of business.

86/ The Aerospace Corporation, supra note 15, at 22-23.

As a practical matter, these costs are impossible to estimate because taggants have never been added to any explosive product in non-experimental conditions; and, as discussed in our answer to question 2, pp. 10-13 supra, the explosives industry at this time does not know of a 100% safe way to add taggants to any explosive product. Consequently, Aerospace's inability to specify the machinery, processes, etc. required to add taggants reduces its "conservative estimates" of manufacturing costs to unfounded speculations. The only conclusion that can be drawn at this time is that expensive retooling and equipment will be necessary.

Only a few of the explosive products in the cap-sensitive explosives category have undergone testing in a pilot production run. The taggants were added by hand during the mixing process. Using this method, which Aerospace apparently assumes,[87] the pilot program encountered a 15% loss in production capability.[88] Such a loss of productivity would have grave consequences for both the price and the supply of explosives, and is precisely the type of "inflation impact" that should be thoroughly discussed in an Inflation Impact Analysis. Nevertheless, Aerospace remained mute on this statistic.

87/ Id. at 22. The assumption that the cost of mechanical taggant dispensing equipment to equal to the labor it replaces is wholly unfounded. It also ignores the safety question. See pp. 6-8 supra.

88/ C. W. Eilo, Report of Pilot Test Program For Tagging of Explosives: Hercules Incorporated 8 (Oct. 25, 1978), reprinted in Statement of Dr. Robert Moler, supra note 5, at Attachment D.

Another consequence of tagging that was mentioned but ignored by Aerospace is the throwaway loss occasioned by taggant use.[89] As part of the manufacturing process, a significant amount of the explosives produced are "reworked," i.e. recycled into the production line and mixed with other batches. Tagging would undoubtedly require some throwaway to prevent mixing codes. This would not only be wasteful: it would decrease productivity and require the purchase of more raw materials, thereby increasing the per unit cost of the raw materials used in an explosives product. See p. 26 supra.

c. Conclusions

The foregoing analysis clearly explains the disparities between the estimated costs proffered by Aerospace and those developed by IME. In preparing its estimates, Aerospace ignored economic theory and business reality by accepting unrealistically price per pound and renewal fee estimates from 3M. Aerospace also understated or ignored significant and substantial portions of the cost equation, notably recordkeeping and retooling costs. It also ignored the 15% loss of productivity encountered in pilot program, as well as the loss of productivity due to the elimination of rework. Most importantly, by ignoring the mandate of S.333 that all explosive material be tagged, Aerospace artificially excluded the cost impact of tagging the most common commercially-produced explosives, noncap-sensitive

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89/ The Aerospace Corporation, supra note 15, at 14.

explosives, thereby grossly understating the projected cost estimates.

As illustrated by the table on the following page, we believe a more realistic conservative estimate of the annual cost of the nationwide program envisioned in S.333 would be $703,093,100. Since the current market value of all explosives sold is $500,000,000, the addition of taggants would more than double the cost of explosives to the consumer, and would have a dramatic economic effect on the domestic explosives industry.

This sobering fact compels us to ask the obvious question: Is it worth it? We think not. Everyone but BATF and its hired contractor, Aerospace Corporation, seems to agree. Bombings are well-planned premeditated acts, not crimes of passion, and identification tagging will not deter the criminal or the terrorist from cold-blooded killing. At very best, tagging provides a confirmatory tool for a solvable crime. In our opinion, this dubious benefit certainly does not justify mandating a costly and untested technology on the explosives industry and the consuming public.

ANNUAL COST OF TAGGING PROGRAM
TO THE EXPLOSIVES INDUSTRY

Explosive Product Category	Taggant Cost	Renewal Fees (10th Year)	Recordkeeping Costs (conservative minimum)	Total
Cap-Sensitive Explosives	$ 27,500,000	$ 12,375,000	$ 5,500,000	$ 45,375,000
Cast Boosters	1,200,000	2,700,000	120,000	4,020,000
Black Powder	250,000	450,000	37,500	737,500
Detonating Cord	21,666,600	90,000,000	250,000	111,916,600
Blasting Caps	1,848,000	31,751,000	840,000	34,439,000
Noncap-Sensitive Explosives	340,000,000	153,855,000	12,750,000	506,605,000
TOTALS	$392,464,600	$291,131,000	$19,497,500	$703,093,100

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591

MAY 25 1979

Honorable Abraham Ribicoff
Chairman, Committee on
Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Thank you for your letter of May 7 which enclosed additional questions from Senators Stevens and Levin.

Senator Stevens asked if there have been bombs containing black or smokeless powder used against aircraft. According to our data, between January 1974 and January 1979, there were 12 explosions aboard United States aircraft. None of the devices contained black or smokeless powder. In the same time period, 10 explosive devices were discovered on U.S. aircraft, prior to detonation, and again none contained black or smokeless powder. Two bombs containing black or smokeless powder were discovered in checked baggage which had been left unclaimed at the flight destination point. One device had been timed to detonate during the flight but did not because of a malfunction. The other device was so crudely constructed it was not possible to determine the intent of the individual who caused it to be loaded upon the aircraft. In addition to the above, a number of bombs have detonated, or were discovered prior to detonation, in airport terminals or locations other than aircraft. At least 10 of these contained black or smokeless powder.

Concerning Senator Levin's question, the Bonn Declaration provides that the participating economic summit nations will take immediate action to halt air service with countries that refuse to extradite or prosecute hijackers and/or return hijacked aircraft. No action has been taken pursuant to the Declaration to date.

Sincerely,

Richard F. Lally

RICHARD F. LALLY
Director, Civil Aviation Security Service

S A A M I

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July 9, 1979

The Honorable Abraham Ribicoff
United States Senate
Chairman, Committee on Governmental Affairs
Washington, D.C. 20510

Dear Senator Ribicoff:

This letter is in response to your letter of May 9, 1979, raising three questions concerning the testimony on S. 333, the Omnibus Antiterrorism Act of 1979, presented to the Committee on May 7, 1979, by the Sporting Arms and Ammunition Manufacturers Institute (SAAMI). Each question is repeated here for your convenience and followed by SAAMI's response.

QUESTION NO. 1

You claim that much smokeless powder would be rendered unmarketable because of tagging. How is this possible? ATF and Aerospace have testified that 10% of each production run could be reworked material. Therefore, it can't be because of rework, so how?

SAAMI RESPONSE

In its testimony, BATF discusses agreements with IME and its member companies for limiting the extent to which high explosives are reworked with a resulting mixture of taggants. The testimony also suggests that limited mixing of explosives containing taggants would be beneficial by creating, in effect, a batch of explosives coded with two codes.

BATF did not address the issue raised by SAAMI that tagging of smokeless powder could result in large amounts of powder being rendered unmarketable due to the failure to meet ballistics specifications after having been contaminated with taggants. SAAMI's written testimony (pages 15-20) deals with this issue in depth, with an explicit description of the problem.

In brief, powder containing taggants which has failed to meet ballistics specifications cannot be reworked due to the hazard of explosions which would be created by passage of the tagged powder through the manufacturing steps necessary for reworking.

In addition, SAAMI emphasized that the need to rework powders to meet ballistics specifications arises frequently and that the rework procedure is very precise due to the great variation in the specific sizes and shapes of smokeless powder grains. Thus, even if reworking powders containing taggants could be safely performed, an arbitrary limit on the amount of powder in this condition which could be reworked would create very serious inventory and recordkeeping problems. The powder would have to be stored as it was reworked and mixed with batches of similar powder in amounts small enough to avoid taggant contamination greater than 10 percent. Significant additional recordkeeping probably would be needed to keep track of the taggant codes in the many powders which are reworked.

QUESTION NO. 2

(A) Is not double-base smokeless powder just as energetic as many dynamites? (B) Is it not reasonable that the bomber would immediately begin using this material if he chose not to use high explosives?

SAAMI RESPONSE TO NO. 2(A)

Double-base smokeless powder is definitely NOT as energetic as dynamites. Double-base smokeless powder containing the maximum amount of nitroglycerin (39.5%) will produce an energy output of approximately 380,000 foot pounds per pound of powder. Dynamites produce energy outputs from between 980,000 and 2,000,000 foot pounds per pound of dynamite. In addition, smokeless powder will produce an explosive energy only when confined. Without confinement smokeless powders merely burn rapidly. True explosives such as dynamites, once initiated, produce an explosion without any confinement.

SAAMI RESPONSE TO NO. 2(B)

This question implicitly assumes that all high explosives will contain taggants. In fact, as BATF has admitted in testimony before the Congress, only 20% of the high explosives produced annually will contain taggants. There are additional,

very significant defects in the coverage of the proposed tagging program which demonstrate the invalidity of BATF's assertion that black and smokeless powders must be tagged or criminals will "shift to the powders exclusively".

In addition, NRA and IME have testified as to the simple means of producing "homemade" explosives. Thus, if criminals wish to use explosive materials not containing taggants (and do not wish to go through the simple procedure of removing the taggants from tagged explosives) there will be ample opportunities. The tagging program can be thwarted without any difficulty.

Our views concerning the ease with which criminals may construct bombs made of high or low explosives not containing taggants are shared by the Federal Bureau of Investigation. In response to an inquiry by Congressman Harold Johnson, Chairman of the House Public Works and Transportation Committee, which currently has before it the House antiterrorism measure (H.R. 2441), FBI Director William Webster wrote:

> "Even if all commercial explosives are tagged, it must be realized that numerous nonexplosive ingredients, readily available to the general public, can be used to fabricate improvised explosive mixtures. One example is ammonium nitrate mixed with either fuel oil or aluminum powder. Another example is match heads which produce explosive force when ignited in a confined condition such as within a pipe bomb.
>
> "If all commercial explosives are tagged, it is logical bombers will increase their use of improvised explosive mixtures, will increase efforts to obtain military explosives, and, when possible, will remove taggants from tagged commercial explosives."

Mr. Webster also stated that the Bureau, "which has investigative jurisdiction in terrorist bombings, feels the tagging program will not be a significant deterrent to terrorist bombers. Further, this Bureau has reservations concerning the present state-of-the art of tagging explosives including contamination and quality air control." (Mr. Webster's letter to Congressman Johnson is attached hereto as an exhibit.)

It is clear that criminals will be able easily to construct bombs without the use of tagged explosives. However, SAAMI believes there is an even more fundamental defect in the proposed

tagging problem which virtually eliminates any significant risk to a criminal from using smokeless powder containing taggants.

QUESTION NO. 3

What additional recordkeeping burden, if any, would the tagging program place on the retailers and legal consumers of smokeless powders? Please be as specific as possible.

SAAMI RESPONSE

Under current recordkeeping requirements, the name and address of a purchaser of smokeless powder must be recorded along with a description of the type of powder, "except that no record need be maintained for the sale of shotgun ammunition, ammunition suitable for use only in rifles generally available in commerce, or component parts of these types of ammunition." 29 C.F.R. § 178.125(c). The term "ammunition" is defined in the regulations as "Ammunition or cartridge cases, primers, bullets or propellant powder designed for use in any firearm other than an antique firearm." 29 C.F.R. § 178.11 (emphasis added). The records must be kept for a period of two years.

Recordkeeping would be increased under the tagging program due to the requirement to record sales of all powders and, for each sale, the taggant code. There is currently no need to record any specific identifying information such as the taggant code even for powders for which disposition records must be kept. Thus, BATF's testimony that, "Existing recordkeeping requirements are sufficient for [BATF] to trace an explosive," is a clearly inaccurate statement even as applied to smokeless powder for which disposition records need be kept. In addition, under any tagging program records would have to be maintained for a period much greater than two years. BATF's suggestion that it is a matter of recording "three or four additional digits" understates the major changes and additions to records and procedures which would be necessary for all sellers of smokeless powder in order to facilitate the recording of the taggant codes. SAAMI testimony has consistently described the high costs associated with recordkeeping systems which allow for accurate recording of specific identifying information such as taggant codes. (See the SAAMI written testimony at pages 23-25.)

The burden of maintaining a recordkeeping system sufficient to allow law enforcement personnel to trace a lot of tagged powder would fall most heavily upon distributors, jobbers and retailers of smokeless powder because they sell more than one manufacturer's powder and most do not have automated recordkeeping systems.

Mr. Robert Hodgdon's testimony before the Subcommittee on Criminal Laws and Procedures of the Senate Judiciary Committee estimated the potential recordkeeping costs for distributors and wholesalers of smokeless powder by extrapolating from Hodgdon's current system for firearms recordkeeping as approved by BATF.

At the distributor level, Hodgdon estimated that its cost for recordkeeping would be $.10 for a 1-pound canister of powder, or 2.45 percent of the distributor sale price. However, at the wholesale level, where items are not handled strictly in case lots, Hodgdon estimated the cost for recordkeeping would be $.42 for a 1-pound canister of powder, or 12.0 percent of the wholesaler's sale price.

These cost-figures for distributors and wholesalers represent strictly recordkeeping and exclude possible significant costs for storage space and inventory practices necessary to facilitate recordkeeping. Hodgdon was unable to estimate those costs. Also, Hodgdon's cost estimate probably understates the costs of recordkeeping for distributors or wholesalers which are not computerized.

The retail dealers contacted by SAAMI have been unable to estimate an exact cost figure for recordkeeping. However, in light of the numerous additions and changes to their current procedures which would be required the cost could be significant. The taggant identification numbers on the product would have to be checked against the shipping documents. Record books would have to be organized or cross-indexed by taggant numbers and powder types, rather than simply by powder types. In turn, incoming powder would have to be inventoried by both taggant numbers and powder types. Powders would have to be grouped in storage by taggant number and powder type, rather than by type alone. Upon selling powder, the clerk would need to locate the proper powder type and taggant number page or section in the record book.

* * *

We believe these responses fully answer your questions. We will be glad to provide for the record any additional information deemed necessary by the Committee.

In closing I would like to assure you on behalf of SAAMI that, as you requested at the hearing, SAAMI will continue to cooperate fully with law enforcement efforts aimed at those who use smokeless powder for illegal purposes.

Very truly yours,

Charles F. Turner

Charles F. Turner
Associate Technical
Advisor

PREPARED STATEMENT OF DR. ROBERT MOLER OF THE AEROSPACE CORPORATION FOR PRESENTATION TO THE GOVERNMENT AFFAIRS COMMITTEE OF THE U.S. SENATE ON EXPLOSIVES TAGGING
MAY 7, 1979

Mr. Chairman and members of the Subcommittee, my name is Robert Moler, Director of Explosives and Materials Control Programs for The Aerospace Corporation. I am here in response to your request to provide information on Aerospace's participation in the Bureau of Alcohol, Tobacco and Firearms tagging program.

My discussion will address two areas: first, the technical aspects of identification tagging and, second, the technology of detection tagging. Before beginning, I would like to acknowledge the willingness to participate that has been exhibited by the various manufacturers of explosives, without which these development efforts could have been severely hampered. In particular, the participation of Atlas, duPont, Hercules, Independent, GOEX, Olin, Sierra, and Trojan in compatibility testing and pilot testing has been crucial in this effort. These companies have expended considerable time and effort assisting in this development even though they do not generally support the concept of tagging.

EXPLOSIVES IDENTIFICATION TAGGING

The explosives identification tagging concept has three major parts: adding tiny, nonconsumable, survivable, coded particles to explosives during their manufacture; recovering them after detonation and decoding them; and tracing them through distribution records to the last legal possessors of explosives from the tagged production lot. Development of the concept has been pursued to increase the ability of law enforcement personnel to apprehend bombers and other illegal users of explosives, to increase the accountability of those who are responsible for the security of explosives being stored or transported, and to assist mine explosion investigators to determine if approved (permissible) explosives were being used.

Description of Taggants

Several types of taggants have been proposed as candidates for explosives identification tagging. In 1969, the Westinghouse Electric Corporation, supported by the Bureau of Mines, began development of a tagging system. Since then, various candidate taggants have been developed by the 3M Company, Ames Laboratories, and the General Electric Company. At present one taggant has been tested sufficiently to indicate that it is capable of surviving the severe environment of detonation, of being recovered from the debris and decoded, and of being compatible with explosives and their manufacturing process. This taggant is a color-coded polymer laminate made by 3M and is referred to as a color-coded taggant. This taggant has been tested extensively for survivability and compatibility with explosive products and manufacturing procedures, and its utility for national implementation has been demonstrated.

Cap-Sensitive Packaged Explosives

The testing to date on the 3M taggant indicates that it can be added during the production of packaged cap-sensitive water gels/slurries, dynamites, and emulsions. Six manufacturers have tested this taggant for compatibility with their products; three manufacturers have demonstrated that taggants can be readily added during normal production runs and that such tagged explosives are functionally indistinguishable from the same type of untagged explosives. Furthermore, these tests demonstrated that taggant distribution is uniform and that batch-to-batch contamination is not a severe problem.

Evaluation of test data by the Bureau of Explosives under the auspices of the U.S. Department of Transportation has determined that because the addition of taggants did not change the hazard characteristics of explosives, such explosives could be transported in the same manner as untagged explosives.

Extensive laboratory testing has been conducted to determine the survivability of taggants and the presence of any contaminate taggants. This testing has indicated that while many of these taggants will be destroyed during detonation, a sufficient number will survive to ensure recoverability by law enforcement officials.

To determine the safety of the color-coded taggants in dynamites, water gels/slurries, and emulsions, we went to the manufacturers and asked: What safety tests do you currently run for new ingredients in your explosives and what tests should be run to determine whether the taggants are unsafe. A workshop was held at the U.S. Bureau of Mines in Bruceton, Pennsylvania, during March 1977 and most explosives manufacturers were represented. A special panel was set up to discuss safety and compatibility and to define a test plan. Based on the discussions at this workshop and subsequent discussions with the manufacturers, requests for proposals were sent to each explosive manufacturer to (1) perform his own compatibility testing on his explosives and (2) participate in a pilot test using the taggants in ordinary explosives production.

Four manufacturers accepted this offer and were funded for safety and compatibility testing. These were Atlas, duPont, Hercules, and Independent. Three of these companies have performed extensive compatibility testing including drop weight impact, BAM friction (TIL), sliding rod, chemical stability, projectile impact, electrostatic discharge, 75° Taliani, Abel Heat, Hot Bar, thermal stability (350° bath) and accelerated aging to assess the long-term affect, if any, of their taggants on the explosives. Allegheny

Ballistics Inc., a Hercules owned company, and one that also performs safety tests for other manufacturers, conducted one of the most extensive test programs. I would like to submit for the record our summary of all tests undertaken (Attachment A) as well as the Hercules Hazards Analysis (Attachment B).Nowhere in these reports are there any test results which show that these taggants are unsafe. Also, nowhere in these reports have any tests been suggested by the industry that were not funded and conducted.

During the past 2 years, we have made considerable progress in pilot testing the color-coded identification taggant in cap-sensitive dynamites and slurries. To date, the Atlas Powder Company has tagged, distributed, and sold some 3 million pounds of their normal production. E.I. duPont de Nemours & Company has tagged, distributed and sold some 2.3 million pounds and Hercules Incorporated has recently completed the tagging and sale of some 1.3 million pounds of explosives. (See Attachment C for a summary of the pilot test procedures and Attachments D, E, and F for reports from the participants.)

Testing is being conducted by the Bureau of Mines for the Mining Safety and Health Administration in order to determine if the addition of taggants will have an effect on the status of certain explosives that are designated as "permissible" to use in an underground coal mine as a consequence of having passed the incendivity test sequence as well as other tests. The Independent Powder Company, as well as Atlas, Hercules, and duPont are awaiting the successful conclusion of the incendivity testing (and subsequent approval by the Mining Safety and Health Administration) before they begin tagging as part of the pilot test some 1.7 million additional pounds of explosives which will be used in underground coal mines.

The permissibility testing of tagged explosives for use in underground coal mines is almost complete. Two of the three test samples have passed

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all tests. The third sample is undergoing retesting because the untagged explosives did not meet the standard test criteria. The Bureau of Mines has stated several times that they saw no problem with the permissibility of tagged permissible explosives, but they have experienced significant difficulty with test repeatibility for the untagged explosives which were to be used as a benchmark to test the tagged explosives.

As part of the pilot test, several ATF agents across the country have purchased tagged pilot test explosives in the marketplace, detonated the explosives, recovered the taggants, and traced the explosives back to the point of purchase in order to provide information on the potentiality of the identification tagging of high explosives.

Although the pilot test is not yet complete, several conclusions can be drawn at this time, and these conclusions are generally applicable to other explosives as well.

(1) Tagged explosives purchased in the marketplace can be traced after detonation to the points of purchase for the tagged production lot.

(2) Explosives manufacturers can add taggants to their products and modify their recordkeeping with some impact on existing procedures. The extent of recordkeeping modification is dependent on the final tagging method selected. One tagging method is to tag all explosives of a given type produced during one shift with a unique code. Another tagging method might be to tag each sequential 10,000 pounds of production with a unique code. Each method is based on the existing date/shift code or some slight modification to it. During the course of the pilot test, an increase in the volume of recordkeeping was noted. This increase was a consequence of the increase in the number of items to be inventoried resulting from the tagging method used.

(3) Some cross-contamination does occur in the packing machine at the taggant change point, but this has not interfered with the trace capability.

(4) Properly trained distributors experience no problems in recording the modified date/shift codes.

(5) Investigators can learn to recover and decode taggants with a few hours of training.

(6) Taggant survivability/recoverability has been good. However, for the most energetic materials, successful variations in the tagging methodology have been developed and successfully tested.

(7) Because of the volume of explosives to be uniquely tagged (i.e., taggant code specificity), the coding should be more specific than just the name of the manufacturer and the date of manufacture. A 10,000- or 20,000-pound production lot for each species of taggant is much more beneficial to the investigator.

The specificity of the information carried by the taggant code is an important issue not only for high explosives, but also for all other explosives to be tagged. The level of specificity described in conclusion 7 is supported by an earlier analysis of "traces" conducted on recovered undetonated explosives which indicated that a taggant that identified only the name of the manufacturer and date of manufacture would apply to over 100,000 pounds of explosives. This volume of explosives has so many final distribution points that the value of the tagging process to law enforcement is significantly diminished. The determination of the desired size of production lot (i.e., level of uniqueness) is difficult and is expected to be different for each type of explosive: cap-sensitive packaged explosives, black powder, cast boosters, smokeless powder, and blasting caps.

Today, the capability for tracing undetonated packaged high explosives is based on the name of the manufacturer, the name and strength of the product, the size of the package, and the date/shift of manufacture--all of which can be roughly translated to about 12,000 pounds of explosives produced with such a unique set of characteristics. The pilot test is using 10,000- and 20,000-pound lots of explosives as the level of uniqueness. The usefulness of these lot sizes for tagging is being determined as a part of the pilot test. An initial indication is that 26,000 pounds is on the high side and that 10,000 pounds is much more useful. Analysis is currently underway to determine the quantity of cast boosters, blasting caps, smokeless powder, and black powder which should be uniquely tagged. Final determination of the specific quantity of explosives to be uniquely tagged should await further analysis.

Based on observations made during the pilot test, we conclude that any definition of identification taggant should provide for the requirement of additional information to be carried by the taggant. This information should include (1) the identification of a given lot of production, the size of which should be defined by regulation, and (2) identification of whether the explosive is permissible or nonpermissible for use in an underground coal mine or other mines where permissibles are required by the Mining Safety and Health Administration.

The 3M Company is under contract to perform a lead-time study pursuant to large-scale production of taggants supporting nationwide tagging implementation. The primary effort involves design of a facility with sufficient automation and process controls to ensure economic delivery of an adequate product in desired quantities. Manufacturing and quality assurance techniques have been defined to ensure that the basic performance characteristics of the taggants are not altered.

The required code library, for a 10-year nonrepeat period is about 2,000,000. This includes anticipated requirements for cap-sensitive packaged explosives, boosters, smokeless and black powder, detonating cord, and blasting caps, plus expected Canadian needs. A nine-layer taggant configuration with a floating black magnetic layer will be necessary to provide such a large library. Taggants have been satisfactorily made and tested in this configuration.

A small number of variations in production methods have been necessitated by the scale-up from the present 3M pilot plant to the large-scale production facility under design. The effects of these variations on taggant performance are being evaluated. To date, no changes in taggant performance have been observed.

At the conclusion of the lead-time study, 3M will provide firm price, schedule, and quality assurance information for subsequent large-scale taggant production, plus samples of taggants made using the selected production equipment and techniques.

Black Powder

The feasibility of the identification tagging of sporting grade black powder using the normal manufacturing process with 3M color-coded taggants (magnet-sensitive and magnet-insensitive) has been established. GOEX, the only domestic manufacturer of black powder, participated in a series of tests that showed that there is no increase in hazard of manufacture or use and no adverse effect on performance as a propelling charge in antique or replica weapons. Cross contamination of taggants is negligible and segregation of taggants on transportation vibration does not occur. Taggant survival and recovery of both magnet-sensitive and magnet-insensitive taggants in pipe bomb explosions is good; also, their incorporation in black powder requires no change in recordkeeping. A copy of a progress report on this test program is included for the record (Attachment G).

A black powder substitute, Pyrodex, is scheduled to be in production soon. Once normal production has been established, an evaluation of the effect of taggant addition is planned in cooperation with the manufacturer.

Cast Boosters

Preparations are being made for the performance of a 3-month pilot test of cast booster tagging for identification. GOEX, Sierra, and Trojan have indicated their willingness to participate, with a total of about 400,000 pounds of boosters to be tagged, distributed, and used. One contract has been signed and two others are being negotiated.

For the cast boosters, taggants will be added as pellets to enhance survivability. The pellet is a 50-percent mixture of soft polyethylene and taggant particles, cast in the form of a cylinder roughly ¼ inch in length and diameter. The pellet (or pellets, depending on booster size) will be placed into the cast booster mold just prior to mold filling. Testing has shown that taggant survivability is good using the pellet method. 3M is currently manufacturing pellets with production scheduled to be completed in May.

Smokeless Powder

Smokeless powder represents a significant percentage of the known fillers in illegal bombs. The actual number, as a use fraction of the amount of smokeless powder available, far exceeds high explosives. It should be noted also that a knowledgeable bomber using double-based smokeless powder can construct a bomb as powerful as a dynamite bomb of similar size. Thus, we have been charged with determining the feasibility of the identification tagging of smokeless powder.

The tagging of commercial smokeless powders is a more complex process than it is for commercial high explosives. This is largely a result of the considerably different end use of the material. Several issues must be considered in the tagging of smokeless powders. I would like to address the important ones here.

1. Survivability--Testing to date demonstrates that the 3M Company color-coded taggants survive explosion in adequate quantity in smokeless powder pipe bomb configurations. Tests of smokeless powder in the pipe bomb configuration have been carried out. These range from tests carried out in the Bureau of Mines facility at Bruceton, Pennsylvania, in which semi-quantitative taggant recovery was possible, to nearly open-field configurations at the Hercules facility in Kenvil, New Jersey. These tests involved quite large pipe bombs (3 in. wide x 19 in. long) that used the most energetic smokeless powder and the most severe initiation method (blasting caps) as well as various other modes of initiation. Our conclusion, based on these tests, is that taggants survive in entirely adequate numbers in smokeless powder explosions.

2. Separability--The current magnet-sensitive color-coded taggant can be removed from smokeless powders by using a magnet. To counter this possible countermeasure, a color-coded taggant has been developed without the magnetic layer. Although this makes the taggant more difficult to recover at the scene of the bombing (fluorescent recovery only), recovery is quite possible without undue effort, and tests have shown that it is a worthwhile trade-off.

Also under development is a color-coded taggant that has the normal magnet-sensitive layer replaced with a material which is not normally magnet sensitive, but which will become magnet sensitive when exposed to a strong shock wave and the thermal environment of the explosion. Recent studies have revealed that nickle formate undergoes such a transition at a suitable temperature, and work in this area is being intensified.

The taggant will ordinarily have a density and particle size which may not be a very close match to smokeless powder grains. A significant mismatch could result in segregation. However, for particles that are matched in size, segregation should not occur in spite of a substantial difference in density. Testing of whether segregation occurs is under way by all smokeless powder manufacturers.

3. Compatibility with Manufacturing Procedure--The manufacturing procedures for smokeless powders are, in general, more complex than procedures for making dynamites and slurries. Contracts have been signed with Olin, Hercules, and duPont to conduct extensive compatibility testing.

The testing being carried out on smokeless powders will include thermal, friction, and static discharge, along with other tests. Because each manufacturer's process and product differ, the range of tests is extensive, and not all tests are being performed by all manufacturers.

4. Compatibility with Firearms--Because smokeless powders are used in firearms, provisions must be made to ensure the compatibility of any taggants with respect to barrel erosion, fouling, and performance. As a result of discussions between Aerospace and SAAMI, a committee on taggants in smokeless powder was organized and a detailed testing program defined. This testing program, which is to be carried out in part by Winchester-Western Company and Remington Arms Company, involves smokeless powder from all three smokeless powder manufacturers and several types of firearms. It is designed to determine if there is any significant fouling, erosion, or other deleterious effect on firearms or on the performance of cartridges. These testing programs are presently being further defined and detailed. The tests will be classic double blind experiments (i.e., the individual performing our experiment will not know which cartridges contain taggants). Hundreds of thousands of firings are scheduled, even though the program has been confined to worst-case conditions.

5. Recordkeeping--At the current time, no recordkeeping comparable to the current date/shift coding used for high explosives is required for smokeless powder. To evaluate the problems and costs of the recordkeeping associated with various levels of uniqueness and to determine their usefulness, a request has been made to SAAMI to secure the appropriate data from its member companies. Data have not yet been received, but Aerospace has visited all of the commercial smokeless powder manufacturing plants and discussed distribution patterns with both manufacturers and distributors. The distribution patterns for smokeless powders are considerably more complex than those for dynamites and slurries, including such recordkeeping problems as those resulting from the reblending and repackaging of a primary manufacturer's product by a distributor/secondary manufacturer.

Boosters

Most of the 3.3 billion pounds of explosives manufactured in this country is not designed and manufactured to be detonated by using only a blasting cap. These explosives -- called noncap-sensitive explosives or blasting agents -- generally require another explosive called a booster to achieve reliable detonation. The most common noncap-sensitive explosive or blasting agent is a commercially produced ammonium nitrate/fuel oil mixture referred to as ANFO. (ANFO can be produced from commercial fertilizer and in this form is not included in the 3.3 billion pounds of commercial explosives produced annually.) The tagging of all noncap-sensitive explosives as well as concentrated ammonium nitrate fertilizers would be a very expensive undertaking. A reasonable alternative is to tag the booster explosive. Our early tests on cast boosters involved dispersing the taggants in the explosive during the casting process. Initial detonation testing indicated an unacceptably low survival rate for the color-coded taggant. Subsequent testing showed that by casting the taggants into a pellet form adequate survivability could be obtained.

Detonating Cord

The identification tagging of detonation cord has proceeded slowly because it is considered to have a lower overall threat potential and the available resources would be more usefully applied to the solution of other problems.

Testing has been carried out using various adhesives to bond the ID taggants to the detonation cord just prior to its coating with polyethylene. An ultraviolet (UV) cured adhesive has functioned well and a prototype automatic applicator is being developed.

Blasting Caps

An important program element is tagging the blasting cap because these are difficult to improvise and are usually used in bombings which are remotely detonated. Bombers who usually improvise their own explosives appear to usually employ a commercial cap to ensure reliable detonation. Several blasting cap tagging methods appear feasible and are being evaluated. One manufacturer uses a polyethylene sheath inside each blasting cap. We are attempting to fabricate similar sheaths with the ID taggants embedded in the polyethylene. Another manufacturer employs two end closure plugs. We are exploring the possibility of adding the ID taggants between these two plugs. These efforts are only in the early stages of development. Time will be required for compatibility testing, and, for the two manufacturers who do not use a double plug or polyethylene sheath, retooling will be required.

Development of New and Improved Identification Taggants

In order to ensure competition in taggant production, we are also actively pursuing the development of other types of identification taggants.

One approach -- the Curie point taggant -- uses aggregates of ferrites, each having a different Curie temperature, as taggants. Taggants so constructed have a large code possibility, use low cost raw materials, and survive the most energetic explosives. General Electric, under subcontract, has manufactured a quantity of these taggants and is currently testing their survivability and readability. This development is promising as an alternative to the color-coded taggant and could be produced on a large scale within several years.

Removal of ID Taggants

Because the color-coded ID taggants as presently employed are magnet sensitive and visible under UV light illumination, the question of removability arises. We have noted that removing the magnet-sensitive taggants from smokeless and black powders is relatively simple; therefore, we have developed a magnet-insensitive version to counter this possibility. Recently, it has become clear that removal of the magnet-sensitive taggants from some dynamites is possible under some conditions but with some reduction in reliability, contrary to what is implied by our earlier statements. We have recently completed an extensive examination of ID taggant removal from 11 different dynamites, slurries, water gels and emulsions. The results of that study are contained in Attachment H. We conclude that a knowledgeable individual having superior motivation and willing to spend 2.5 to 15 hours on a single 1- x 8-in. cartridge of explosive is highly unlikely to be able to remove all the taggants and in many cases (4 of 8 attempts) the repackaged explosive will fail or partially fail to react when initiated with a No. 8 blasting cap. Nevertheless, in nearly every case we found it to be possible to remove a large percentage of the taggants by the laborious process of extracting them one at a time with tweezers or a magnetic needle after locating them with the UV light. Only in the case of two granular permissible dynamites was removal of the taggants with a simple magnet sweeping,

moderately effective or even possible. In one out of the two cases tried, the permissible dynamite failed to detonate properly after careful repackaging.

We conclude that the possibility of removal using UV light, magnet and tweezers, however unlikely it may be in practice, needs to be countered. Consequently we are testing taggants that have been encapsulated with polyethylene made opaque to UV and visible light. These taggants cannot be observed with a UV light; however, in an explosion, the polyethylene burns off and spotting the ID taggant with the UV light becomes possible. As further discouragement to taggant removal, the size of the taggant particles can be reduced by a factor of 2 without significantly changing survivability, recoverability or code readout. This would increase the number of particles by a factor of two and make removal by magnetic or other means substantially more difficult. Also, the use of a 50-50 mixture of magnet-sensitive and magnet-insensitive taggants could be employed (as in the case of black and smokeless powders) at the cost of some increase in difficulty in taggant recovery on the part of the investigator.

One of the early objectives of this program was to develop a color-coded taggant that contains a material that is not magnet sensitive before explosions, but is converted to a magnet-sensitive material by the heat and pressure of the explosion. One such material meeting these requirements is being tested.

Cost of National Implementation -- ID Tagging

The principal cost item in the explosives identification tagging program is the cost of the taggants. The most realistic cost of adding the 3M color-coded taggant to explosives is about 1.25 cents to 2 cents per pound of cap-sensitive packaged explosives. (Polyethylene encapsulated taggants cost $25 to $40 a pound, and unencapsulated taggants cost $50 to $80 a pound (which of course would be used for twice as much explosives).) The nominal cost

of these explosives is 50 cents per pound of explosives. Additionally, there are increased costs resulting from from: (1) receiving and inventorying taggants, (2) measuring and adding the taggants, (3) controlling cross-contamination at taggant changeover points, (4) controlling the amount of rework material that can be added, (5) modifying explosives packages and shipping cases to reflect the added taggants, (6) modifying the inventory, invoicing, and other recordkeeping systems, and (7) establishing increased quality assurance measures. We are trying to determine the actual increased cost to the manufacturer during the national pilot test. The cost of other program elements are discussed in detail in an updated inflationary impact statement, a copy of which is included as Attachment I.

EXPLOSIVES DETECTION TAGGING

Explosives detection tagging is not as far advanced technically as explosives identification tagging. A detection tagging development effort was initiated in 1975 under the sponsorship of the Federal Aviation Administration, the Law Enforcement Assistance Administration, and Brookhaven National Laboratory.

During the early development efforts on explosives detection, the idea of an intrinsic vapor detection method had great appeal to the research community. Consequently, various methods using vapor detection concepts were developed. An impetus for the initial optimism concerning intrinsic vapor detection was the fact that the commercial explosives market was dominated by nitroglycerin-based dynamites. A number of early studies has also mistakenly suggested that most other materials (e.g., smokeless powders, black powder, and military explosives) emitted distinctive vapors in sufficient quantities to be detectable.

Over the past several years, a number of carefully designed studies have been conducted to characterize, compute, and measure the vapor effluents from explosives under laboratory and simulated real-world conditions. While these studies (which were sponsored by the Law Enforcement Assistance Administration, the Federal Aviation Administration, the U.S. Postal Service, and the U.S. Army Mobility Equipment Research and Development Command (USAMERADCOM)) disagree on the specifics, they concluded that only dynamites based on ethylene glycol dinitrate or nitroglycerin, and possibly TNT, have sufficiently high vapor pressures and emission rates to allow for reasonably reliable vapor detection at a point of controlled access. When the military explosive, Composition C-4, was not exposed to the air for long periods before use, it was found to emit significant amounts of cyclohexanone, a solvent used in the manufacturing process. Therefore, cyclohexanone vapor could be a potential aid in detecting the presence of C-4. However, slurries/water gels, black powders and smokeless powders (commonly used in pipe bombs), PETN, RDX, HMX, and tetryl were found to have vapor pressures so low that reliable detection would be possible only if detection thresholds of 1 part in 10^{14} were attained. Because slurries/water gels are rapidly replacing dynamites on the American market and because pipe bombs account for about 20 percent of the bombing incidents (ATF investigations), the serious limitations of all intrinsic vapor detection techniques are now realized.

While there are promising nonvapor techniques for detecting some intrinsic characteristics of explosives (e.g., tomography), they have three characteristics that limit their implementation. First, they are applicable only for a limited access search. Second, they involve the use of ionizing radiation and cannot be used on people. Third, they are only in the early stages of research.

It is our conclusion that the most effective way to detect explosives before detonation in the near term, is to add something to the explosive during its manufacture, i.e., tag it for detection. The taggant might be a vapor tag, or it might be something which would be sensed by electromagnetic radiation or other nonvapor methods.

The areas of tagging for detection and development of detection instrumentation are the major efforts now being undertaken in the tagging program.

Microencapsulated Taggant Development

The major effort today in detection tagging is in microencapsulating volatile fluids which give off vapors that will be indicative of the presence of explosives. (Microcapsules are commonly used in such items as scratch and smell labels.)

More specifically, the objective of this program is to develop and demonstrate, through pilot testing, a vapor taggant that is unique to the environment, that is easily detectable, will emit the desired amount of vapor for at least 5 years, is inexpensive, and that can be added to commercial explosives without affecting their safety or usage. Three subcontractors are currently developing such taggants: Capsulated Systems, Inc., SRI International using Appleton Paper Technology, and the 3M Company. There are currently five candidate taggants and three approaches to microencapsulating them.

These microcapsules may be mixed directly with most explosives during their manufacture (at the same time ID taggants are added). This method applies to dynamites, water gels and slurries, emulsions, smokeless powder, black powder, and cast boosters. In the case of detonating cord, they will be placed on the detonating cord fabric cover just before the polyethylene layer is applied. In the case of blasting caps, the microcapsules will be added by mixing them with the rubber plug material currently used for the blasting cap end closure.

The five candidate taggants are currently being tested for long term emission rates, escape rates through potential barriers, atmospheric impact, thermal stability, mutagenicity, and toxicity. Two taggants have successfully passed all of these tests, and the testing program for the remaining three candidates will be completed this summer. Simulated explosives have been tagged and every indication is that they are working as expected. These tagged explosives have been successfully detected using a baggage examiner developed by the U.S. Customs Service and a vapor detector developed by Brookhaven National Laboratories. Also, simulated cast boosters have been tagged with successful results.

The cost of these taggants should be no higher than $65 per pound ($60 for the taggant material and $5 for the microencapsulation). At 250 parts per million, the cost per pound of cap-sensitive packaged explosives should be less than 1.6 cents.

The next step is the testing of the safety/compatibility of the taggants with explosives. A contract was recently awarded to Hazards Research Corporation for safety/compatibility testing of the candidate taggants with black powder. The results of this study will be available in June 1979. Also, Request for Quotations have been sent to Atlas, duPont, and Hercules for compatibility testing with dynamites and water gels/slurries. Hercules has declined to bid; Atlas has declined to participate citing personnel shortages; and duPont has formally delayed their response. While there are other sources (laboratories) where such testing can be undertaken (to which we have now sent RFQ's), we will continue to try to enlist the participants of the explosive industry. A competitive RFP for smokeless powder compatibility studies has been prepared and will be released shortly. RFQ's for compatibility testing with blasting caps have also been sent to Atlas, duPont, and Hercules and their response is awaited.

Detection Instrumentation

The incorporation of vapor taggants into explosives requires appropriate sensing instrumentation for detection. In order to avoid false alarms from normal or naturally occurring ambient pollutants, vapor detectors that are specific and sensitive to trace quantities of the incorporated vapor taggants must be developed.

Three different types of vapor taggant analyzers are being investigated: ion mobility spectrometry (IMS), continuous electron capture detector (CECD), mass spectrometry (MS).

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The IMS development feasibility investigation will be completed in 4 months. An off-the-shelf unit, available commercially, is being used in this work (PCP, Inc., Model PC-100). A special-purpose IMS prototype unit will be developed for laboratory and field testing after feasibility is established. This instrument is a leading candidate with an expected cost of about $10,000.

Mass spectrometry is a commonly used laboratory technique. It is highly sensitive to the candidate taggants and can easily distinguish them from the environmental background. Also, low cost field units are currently in use by industry. These field units appear quite rugged and are maintained not by laboratory technicians but by regular plant maintenance personnel. However, a special purpose instrument must be developed for the specific requirements of this program. Projected costs for this instrument is $30,000 to $35,000.

A continuous electron capture instrument has been developed by the Brookhaven National Laboratories. This instrument has been used in recent work trials to demonstrate the feasibility of detecting the presence of tagged explosives in luggage. This laboratory instrument must, however, be redesigned for rugged field use by untrained operators. Of the three development efforts, this one could be the most difficult. The cost of such an instrument should be comparable to the IMS instrument.

Of equal concern is the development of vapor collector, transport, and calibration systems. These systems would become an integral part of any detection system. The vapor collector and transport system are particularly important because, in large measure, they determine the taggant conconcentration in the air samples presented to the detector. Development of such systems have been undertaken by the U.S. Customs Service, by Sandia Laboratories for the Department of Energy, and by the Federal Aviation Administration. Our efforts in these areas will rely heavily on this other work and will continue concurrently with the detector development effort.

[NOTE.—The attachments to the statement of Dr. Moler are retained in the committee files.]

ADDITIONAL MATERIAL SUBMITTED FOR THE HEARING RECORD

96TH CONGRESS
1ST SESSION

S. 333

To effect certain reorganization of the Federal Government to strengthen Federal programs and policies for combating international and domestic terrorism.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 5 (legislative day, JANUARY 15), 1979

Mr. RIBICOFF (for himself, Mr. JAVITS, Mr. BAKER, Mr. BENTSEN, Mr. DOLE, Mr. HEINZ, Mr. MATHIAS, Mr. MATSUNAGA, Mr. MCGOVERN, Mr. MOYNIHAN, Mr. PELL, Mr. RANDOLPH, Mr. SARBANES, Mr. STAFFORD, Mr. TSONGAS, and Mr. YOUNG) introduced the following bill; which was read twice and referred, by unanimous consent, to the Committee on Governmental Affairs, with instructions that if and when reported, it be referred jointly to the Committees on Commerce, Science, and Transportation, Foreign Relations, Intelligence, and the Judiciary for not to exceed 30 days.

A BILL

To effect certain reorganization of the Federal Government to strengthen Federal programs and policies for combating international and domestic terrorism.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. This Act may be cited as the "Omnibus Antiterrorism Act of 1979".

SEC. 2. TABLE OF CONTENTS.

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DECLARATION OF FINDINGS

SEC. 3. (a) The Congress hereby finds that—

(1) innocent persons have been killed, injured, and victimized, human rights violated, property destroyed and damaged, and international commerce obstructed as a result of terrorist acts;

(2) such acts represent an intolerable attack against the fundamental right to life and security of all peoples of the world;

(3) such acts constitute a threat to the orderly and civilized functions of the international community;

(4) certain nations exhibit a pattern of support for international terrorist acts; and

(5) certain international airports fail to maintain consistently effective security measures.

(b) Further, the Congress finds that a Council for Combating Terrorism (hereinafter referred to as "Council") must be established in the Executive Office of the President to assure consistency in the management of such policy, to assure an efficient response to emergency and crisis situations, and to press for international sanctions against convicted terrorists.

(c) Further, the Congress finds and declares it necessary to provide for an Assistant Secretary of State, an Assistant Attorney General, and an Assistant Secretary of Transportation to assure high-level attention to activities to combat terrorism in the United States Department of State, United States Department of Transportation, and United States Department of Justice.

(d) Further, the Congress finds and declares that economic sanctions should be directed at countries which harbor, aid, abet, or assist terrorists.

DECLARATION OF PURPOSES

SEC. 4. The Congress therefore declares that the establishment of a Council for Combating Terrorism and the assignment of a high priority to antiterrorist policy is in the public interest to promote the welfare of American citizens by assuring coordinated and effective administration of Federal programs and policies for combating terrorism. It is the purpose of this Act—

(a) to establish in the Executive Office of the President a permanent Council for Combating Terrorism;

(b) to establish in the Department of State an Office, headed by an Assistant Secretary, to coordinate the responsibilities of that Department for combating international terrorism;

(c) to establish in the Department of Justice an Office, headed by an Assistant Attorney General, to coordinate the responsibilities of that Department for combating terrorism;

(d) to establish in the Department of Transportation an Office, headed by an Assistant Secretary, to

coordinate the responsibilities of that Department for combating terrorism;

(e) to bring together in the new offices the responsibility for coordinating management of all of the antiterrorist policies and programs;

(f) to provide an appropriate organizational framework for the implementation of such programs;

(g) to provide for effective permanent mechanisms for development and implementation of a comprehensive national antiterrorist policy;

(h) to assure coordinated and effective research in antiterrorist measures;

(i) to improve the effectiveness of the information-gathering system regarding terrorist acts and results;

(j) to establish effective sanctions against those countries which harbor, aid, or abet international terrorists;

(k) to coordinate and supervise the implementation of United States policy with respect to international acts of terrorism;

(l) to oversee and administer the provisions of this Act;

(m) to develop new initiatives which the United States can implement unilaterally or with other nations to control international acts of terrorism;

(n) to participate in international conferences and negotiations on the control of international acts of terrorism;

(o) to devise procedures for reacting swiftly and effectively to acts of terrorism that occur;

(p) to strengthen Federal capabilities in policy and planning, coordination, intelligence, and response capability, and to enlist the cooperation of all other nations and national and international organizations in initiatives to counter terrorist acts more effectively throughout the world, while safeguarding democratic values;

(q) to promote appropriate action by the United States and other governments in order to combat international terrorism; and

(r) to provide public notice to persons traveling in international air commerce of deficient security programs and facilities at certain foreign airports.

DEFINITIONS

SEC. 5. For the purposes of this Act, the following definitions are established:

(a) "International terrorism" includes any act designated as an offense or crime under—

(1) the Convention for the Suppression of Unlawful Seizure of Aircraft (done at The Hague, December 16, 1970);

(2) the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (done at Montreal, September 23, 1971); and

(3) the Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, including diplomatic agents (adopted by the General Assembly of the United Nations at New York, December 14, 1973); or

(4) any other unlawful act which results in the death, bodily harm, or forcible deprivation of liberty to any person, or in the violent destruction of property, or in interference with facilities and installations vital to public health, safety, welfare and commerce, or an attempt or credible threat to commit any such act, if the act, threat, or attempt is committed or takes effect—

(A) outside the territory of a state of which the alleged offender is a national; or

(B) outside the territory of the state against which the act is directed; or

(C) within the territory of the state against which the act is directed and the alleged offender knows or has reason to know that a person against whom the act is directed is not a national of that state; or

(D) within the territory of any state when found to have been supported by a foreign state as defined in section 5(b), irrespective of the nationality of the alleged offender:

Provided, That the act of international terrorism is—

(i) intended to damage or threaten the interests of or obtain concessions from a state or an international organization; and

(ii) not committed in the course of military or paramilitary operations directed essentially against military forces or military targets of a state or an organized armed group.

(b) "State support of international terrorism" shall consist of any of the following acts when committed deliberately by a state:

(1) furnishing arms, explosives, or lethal substances to individuals, groups, or organizations with the likelihood that they will be used in the commission of any act of international terrorism;

(2) planning, directing, providing training for, or assisting in the execution of any act of international terrorism;

(3) providing direct financial support for the commission of any act of international terrorism;

(4) providing diplomatic facilities intended to aid or abet the commission of any act of international terrorism; or

(5) allowing the use of its territory as a sanctuary from extradition or prosecution for any act of international terrorism.

TITLE I—REORGANIZATION OF EXECUTIVE OFFICE OF THE PRESIDENT

ESTABLISHMENT OF COUNCIL TO COMBAT TERRORISM

SEC. 101. There is hereby established in the Executive Office of the President an entity to be known as the Council To Combat Terrorism (hereinafter referred to as the "Council"). The Council shall be headed by, and its activities shall be administered under the supervision and direction of, the Assistant to the President for National Security Affairs.

COUNCIL FUNCTIONS

SEC. 102. The Council shall—

(a) assist the President in the implementation of this Act and shall provide staff support and assistance in the preparation of the Lists of States Supporting International Terrorism;

(b) consider the most effective means by which to combat terrorism in the United States and abroad;

(c) serve as the lead group in establishing procedures to insure that the United States Government can

take appropriate action in response to acts of terrorism which directly or indirectly affect United States citizens;

(d) coordinate, among the Government agencies, ongoing activity for the prevention of terrorism, including the collection of worldwide intelligence, the physical protection of United States personnel and installations abroad, and foreign diplomats and diplomatic installations in the United States;

(e) evaluate all such programs and activities and, where necessary, recommend methods for increasing the effectiveness of their implementation; and

(f) make recommendations to the Director of the Office of Management and Budget concerning proposed funding of such programs.

COUNCIL MEMBERSHIP

SEC. 103. The Council shall consist of the following individuals:

(1) the Assistant to the President for National Security Affairs;

(2) the Secretary of State;

(3) the Secretary of the Treasury;

(4) the Secretary of Defense;

(5) the Attorney General;

(6) the Secretary of Transportation;

(7) the United States Ambassador to the United Nations;

(8) the Director of Central Intelligence;

(9) the Assistant to the President for Domestic Affairs;

(10) the Director of the Federal Bureau of Investigation;

or their delegates, and any additional members which the Assistant to the President for National Security Affairs may determine are necessary.

REPORT ON ACTS OF INTERNATIONAL TERRORISM

SEC. 104. (a) Six months after the date of enactment of this Act and each year thereafter, the President shall transmit to the President pro tempore of the Senate and the Speaker of the House of Representatives a report on those incidents he determines to be acts of international terrorism pursuant to section 5 of this Act: *Provided, however,* That any such incident which affects or involves citizens or significant interests or property of the United States shall be reported to Congress not later than sixty days after the occurrence of such an incident.

(b) With respect to any such incident which affects or involves citizens or significant interests or property of the United States, and with respect to any major act of interna-

tional terrorism, such reports shall include, but not be limited to, the following information:

(1) a description of the incident and of the involvement and identity of each individual, entity, group, or organization involved in such incident;

(2) the identity of any government providing state support for such acts of international terrorism, and a statement setting forth the exact nature and extent of such government's involvement;

(3) a description of the actions of any government which assisted in bringing about a positive termination of the incident;

(4) a description of the response of the United States Government to such incident.

(c) Nothing in this section is intended to require the public disclosure of information which is properly classified under criteria established by Executive order, or is otherwise protected by law. Such information shall be provided to the President pro tempore of the Senate and the Speaker of the House of Representatives in a written classified report. In such case, an unclassified summary of such information shall be prepared and submitted to the President pro tempore of the Senate and the Speaker of the House of Representatives.

(b) Nothing in this section is intended to require disclosure of investigatory records compiled for law enforcement

purposes specifically protected by section 552(b)(7) of title 5, United States Code.

LIST OF STATES SUPPORTING INTERNATIONAL TERRORISM

SEC. 105. (a) Six months after the date of enactment of this Act and each year thereafter, the President shall consider which, if any, states have demonstrated a pattern of support for acts of international terrorism. If the President determines that any states have so acted, he shall submit a list of states supporting international terrorism to the President pro tempore of the Senate and the Speaker of the House of Representatives, and set forth his reasons for listing any such states. The President may at any time add to any such list the name of any state supporting international terrorism by transmitting the name of such state to the President pro tempore of the Senate and the Speaker of the House of Representatives together with his reasons for adding the name of such state to the list. If the President determines that no states have undertaken such acts, he shall report the same with a detailed explanation.

(b) Such list shall also identify any states against which sanctions have been applied pursuant to section 106 of this Act, and any other initiatives of the United States with respect to such states.

(c) Nothing in this section is intended to require the public disclosure of information which is properly classified

under criteria established by Executive order, or is otherwise protected by law. Such information shall be provided to the President pro tempore of the Senate and the Speaker of the House of Representatives in a written classified report. In such case, an unclassified summary of such information shall be prepared and submitted to the President pro tempore of the Senate and the Speaker of the House of Representatives.

(d) Nothing in this section is intended to require disclosure of investigatory records compiled for law enforcement purposes specifically protected by section 552(b)(7) of title 5, United States Code.

(e)(1) The list shall be reviewed periodically by the President. The President may propose to Congress a request for removal of any state from the list. Such request shall be accompanied by the reasons therefor.

(2) A state requested by the President to be deleted from the list shall be removed from the list thirty days after the submission of that request to the Congress unless Congress by concurrent resolution disapproves that request.

SANCTIONS AGAINST STATES SUPPORTING INTERNATIONAL TERRORISM

SEC. 106. (a) When a foreign government is listed pursuant to section 105 of this Act, the President shall—

(1) provide no assistance under the Foreign Assistance Act of 1961, or

(2) not authorize any sale, or extend any credit or guaranty, with respect to any defense article or service as defined by section 47 of the Arms Export Control Act, or

(3) approve no export license for the export of commodities or technical data which would enhance the military potential of the foreign government or which would otherwise enhance its ability to support acts of international terrorism, or

(4) extend no duty-free treatment under title V of the Trade Act of 1974, or

(5) permit no entry to the United States by nationals of such country, or foreign nationals sponsored by such country, for the purpose of acquiring training or education in nuclear sciences or subjects having military applicability.

(b)(1) If the President finds that the interests of national security so require, he may suspend the applicability of all or any part of the prohibitions listed in subsection (a) of this section in such case: *Provided*, That the President consults with the appropriate committees of Congress prior to the suspension of such prohibitions. He shall report his reasons therefor in writing in detail to the President pro tempore of the Senate, and the Speaker of the House of Representatives and those prohibitions shall not apply.

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(2) In determining which of the prohibitions in subsection (a) of this section should be taken, the President, in consultation with Congress, shall consider—

(A) the effectiveness of suspending any prohibition in inducing change in a country's policy or practice of supporting acts of international terrorism;

(B) the effect of such suspension on United States relations with other governments; and

(C) the effects of such suspension on other national interests of the United States.

(c) In devising initiatives to combat international terrorist actions and to reduce state support for such actions, the President shall take such other measures available to him as he deems appropriate; he shall take into account the effectiveness of specific sanctions in inducing change in a country's policy or practice of supporting acts of international terrorism; the likely effect of sanctions on overall United States relations with such country or with other countries; and the effect such sanctions would have on other United States national interests.

(d) The President shall take all appropriate diplomatic measures consistent with international obligations to support the effectiveness of actions taken pursuant to this authority in the accomplishment of the purposes of this Act.

(e) The President shall promptly and fully inform the President pro tempore of the Senate and the Speaker of the House of Representatives of each exercise of authority granted under the Act.

(f) Nothing in this section is intended to require the public disclosure of information that is properly classified under criteria established by Executive order or is otherwise protected by law. Such information shall be provided to the President pro tempore of the Senate and to the Speaker of the House of Representatives in a written classified report. In such case, an unclassified summary of such information shall be prepared and submitted to the President pro tempore of the Senate and the Speaker of the House of Representatives.

REPORT ON FEDERAL AND INTERNATIONAL CAPABILITIES TO COMBAT TERRORISM

SEC. 107. (a) Not later than six months after the date of enactment of this Act, and at intervals of two years thereafter, the President shall submit to the President pro tempore of the Senate and the Speaker of the House of Representatives a Report on Federal and International Capabilities To Combat Terrorism. Such report shall include a comprehensive and specific review of Federal antiterrorism organization, policies, and activities. It shall include a description and evaluate of the effectiveness of relevant Federal organization-

al structures, planning, coordination, including with State and local authorities, response capability, intelligence gathering and analysis, assistance to and cooperation with United Stated business representatives abroad, and security preparedness and security adequacy of the United States diplomatic and military installations. Such report shall further include a statement and evaluation of all relevant Federal policies, including those with respect to responding to threats, and the management of a terrorist incident. The report shall contain an assessment of the capability and effectiveness of the International Civil Aviation Organization and other international programs and organizations to establish appropriate airport security standards and combat terrorist activities.

(b) Nothing in this section is intended to require the public disclosure of information which is properly classified under criteria established by Executive order, or is otherwise protected by law. Such information shall be provided to the President pro tempore of the Senate and the Speaker of the House of Representatives in a written classified report. In such case, an unclassified summary of such information shall be prepared and submitted to the President pro tempore of the Senate and the Speaker of the House of Representatives.

TRANSFER OF EXISTING FUNCTIONS AND PROPERTY

SEC. 108. There are hereby transferred to and vested in the Council all functions and authorities, personnel, property,

and records vested in the National Security Council/Special Coordination Committee, Working Group on Terrorism.

TITLE II—REORGANIZATION OF THE DEPARTMENT OF TRANSPORTATION

ESTABLISHMENT OF OFFICE FOR COMBATING TERRORISM

SEC. 201. (a) There is hereby established in the Department of Transportation an Office for Combating Terrorism, which shall be headed by an Assistant Secretary, appointed by the President, by and with the advice and consent of the Senate.

(b) Section 5315(81) of title 5, United States Code, is amended by striking out "(4)" and by inserting in lieu thereof "(5)".

OFFICE FUNCTIONS

SEC. 202. The Office shall—

(a) coordinate, supervise, and insure the efficient management, implementation, and development of all antiterrorist policies, programs, and activities of the Department of Transportation; and

(b) work closely with the Council To Combat Terrorism, in assisting that Council in the performance of its functions.

INFORMATION ON AIRPORT SECURITY

SEC 203. Section 1115 of the Federal Aviation Act of 1958 (49 U.S.C. 1515) relating to security standards in foreign air transportation is amended to read as follows:

"SECURITY STANDARDS IN FOREIGN AIR TRANSPORTATION

"SEC. 1115. (a) The Secretary of Transportation shall conduct at such intervals as the Secretary shall deem necessary an assessment of the effectiveness of the security measures maintained at those foreign airports serving United States carriers, those foreign airports from which foreign air carriers serve the United States, and at such other foreign airports as the Secretary may deem appropriate. Such assessments shall be made by the Secretary in consultation with the appropriate aeronautic authorities of the concerned foreign government. The assessment shall determine the extent to which an airport effectively maintains and administers security measures. The criteria utilized by the Secretary in assessing the effectiveness of security at United States airports shall be considered in making such assessments and shall be equal to or above the standards established pursuant to the Convention on International Civil Aviation. The assessment shall include consideration of specific security programs and techniques, including but not limited to, physical and personnel security programs and procedures, passenger

security and baggage examination, the use of electronic, mechanical, or other detection devices, airport police and security forces, and control of unauthorized access to the airport aircraft, airport perimeter, passenger boarding, and cargo, storage, and handling areas.

"(b) The report to the Congress required by section 315 of this Act shall contain:

"(1) A summary of those assessments conducted pursuant to subsection (a) of this section. The summary shall identify the airports assessed and describe any significant deficiencies and actions taken or recommended.

(2) A description of the extent, if any, to which specific deficiencies previously identified, if any, have been eliminated.

"(c) When the Secretary finds that an airport does not maintain and administer effective security measures at the level of effectiveness specified in subsection (a) of this section, the Secretary shall notify the appropriate authorities of such foreign government of this finding, and recommend the steps necessary to bring the security measures in use at that airport to the acceptable level of effectiveness.

"(d)(1) Not later than 60 days after the notification required in subsection (c) of this section and upon a determination by the Secretary that the foreign government has failed

to bring the security measures at the identified airport to the level of effectiveness specified in subsection (a) of this section, the Secretary—

"(A) shall publish in the Federal Register and cause to be posted and prominently displayed at all United States airports regularly serving scheduled air carrier operations the identification of such airport; and

"(B) after consultation with the appropriate aeronautical authorities of such government and, notwithstanding section 1102 of this Act, may, with the approval of the Secretary of State, withhold, revoke, or impose conditions on the operating authority of any carrier or foreign air carrier to engage in foreign air transportation utilizing that airport.

"(2) The Secretary shall promptly report to the Congress any action taken under this subsection setting forth information concerning the attempts the Secretary has made to secure the cooperation of the nation in attaining the acceptable level of effectiveness.

"(e) Nothing in this section is intended to require the public disclosure of information that is properly classified under criteria established by Executive order or is otherwise protected by law. Such information shall be provided to the President pro tempore of the Senate and to the Speaker of the House of Representatives in a written classified report.

In such case, an unclassified summary of such information shall be prepared and submitted to the President pro tempore of the Senate and the Speaker of the House of Representatives.".

AVIATION SECURITY ASSISTANCE TO FOREIGN GOVERNMENTS

SEC. 204. (a)(1) The Secretary of Transportation is authorized to promote the achievement of international aviation security by providing technical assistance concerning aviation security to foreign governments. Such technical assistance may include the conduct of surveys to analyze the level of aviation security in airports and the provision of training in aviation security to foreign nationals. Such training in aviation security may be conducted either in the United States or in foreign nations. The Secretary may provide for the payment of subsistence and expenses for travel within the United States for foreign nationals receiving such aviation security training in the United States.

(2) The Secretary may require a foreign government to reimburse the United States for all, part, or none of the cost of providing the technical assistance authorized under paragraph (1).

(b) There is authorized to be appropriated to carry out the provisions of this subsection an amount not to exceed $100,000 for each of the fiscal years 1980, 1981, and 1982.

TITLE III—REORGANIZATION OF THE DEPARTMENT OF JUSTICE

ESTABLISHMENT OF OFFICE FOR COMBATING TERRORISM

SEC. 301. (a) There is hereby established in the Department of Justice an Office for Combating Terrorism, which shall be headed by an Assistant Attorney General, appointed by the President, by and with the advice and consent of the Senate.

(b) Section 5315(19) of title 5, United States Code, is amended by striking out "(9)" and by inserting in lieu thereof "(10)".

OFFICE FUNCTIONS

SEC. 302. The Office shall—

(a) coordinate, supervise, and insure the efficient management, implementation, and development of all antiterrorist policies, programs, and activities of the Department of Justice; and

(b) work closely with the Council To Combat Terrorism, in assisting that Council in the performance of its functions.

EXPLOSIVE TAGGANTS

SEC. 303. (a) Section 841 of title 18, United States Code, is amended by adding at the end thereof the following:

"(c) 'Identification taggant' means any substance which (1) is added to an explosive material during the manufacture

of such material and (2) is retrievable after detonation and permits the identification of the manufacturer, the date of manufacture of such material, and provides such other information as determined by the Secretary of the Treasury.

"(p) 'Detective taggant' means any substance which (1) is added to an explosive material during the manufacture of such material, and (2) permits detection of such material prior to its detonation.".

(b) Section 842 of title 18, United States Code, is amended by adding at the end thereof the following:

"(l) One year after the date of the enactment of this Act, it shall be unlawful for any person or persons to manufacture any explosive material which does not contain an identification taggant which satisfies the standards promulgated by the Secretary as provided in section 847.

"(m) Two years after the date of the enactment of this Act, it shall be unlawful for any person or persons to manufacture any explosive material which does not contain a detection taggant which satisfies the standards promulgated by the Secretary as provided in section 847.

"(n) Two years after the date of the enactment of this Act, it shall be unlawful for any person or persons to transport, ship, distribute, or receive, or cause to be transported, shipped, distributed, or received, in interstate or foreign commerce any explosive material which does not contain an iden-

tification taggant which satisfies the standards promulgated by the Secretary as provided in section 847.

"(o) Three years after the date of the enactment of this Act, it shall be unlawful for any person or persons to transport, ship, distribute, or receive, or cause to be transported, shipped, distributed, or received, in interstate or foreign commerce any explosive material which does not contain a detection taggant which satisfies the standards promulgated by the Secretary as provided in section 847.

"(p) One year after the date of the enactment of this Act, it shall be unlawful for any person or persons to import any explosive material which does not contain an identification taggant which satisfies the standards promulgated by the Secretary as provided in section 847.

"(q) Two years after the date of the enactment of this Act, it shall be unlawful for any person or persons to import any explosive material which does not contain a detection taggant which satisfies the standards promulgated by the Secretary as provided in section 847.

"(r) Two years after the date of the enactment of this Act, it shall be unlawful for any person to resell or otherwise dispose of any explosive material sold as surplus by a military or naval service or other agency of the United States which does not contain an identification taggant which satisfies the standards promulgated by the Secretary as provided in section 847. The shipment of surplus explosive materials from the Military Establishment where sold to the purchaser's place of business shall be in accordance with regulations promulgated by the Secretary.

"(s) Three years after the date of the enactment of this Act, it shall be unlawful for any person to resell or otherwise dispose of any explosive material sold as surplus by a military or naval service or other agency of the United States which does not contain a detection taggant which satisfies the standards promulgated by the Secretary as provided in section 847. The shipment of surplus explosive materials from the Military Establishment where sold to the purchaser's place of business shall be in accordance with regulations promulgated by the Secretary.

"(t) The Secretary shall by regulation defer one or more of the time periods specified in paragraphs (l) through (s) by extensions of not more than one year at a time until the Secretary is satisfied that taggants: are available in sufficient quantity for commercial purposes; will not impair the quality of the explosive materials for their intended use; are not unsafe; or will not adversely affect the environment. The Secretary shall inform the Congress sixty days prior to each extension, specifying the reasons for such extension, and estimating the time the Secretary expects the provisions of this section will become effective.

"(u) The requirements of paragraphs (l) through (q) of this subsection shall not apply to any explosive material designated by the President or his designee as an explosive material to be used by the Department of Defense or another agency of Government for national defense or international security purposes. Any explosive material so designated shall be reported promptly to the Secretary of the Treasury.".

(c) Section 844(a) of title 18, United States Code, is amended (1) by striking out "(a) Any" and inserting in lieu thereof "(a)(1) Any", and (2) by adding at the end thereof the following new subsection.

"(2) Any person who violates subsection (l) of section 842 of this chapter shall be fined not more than $10,000 or imprisoned not more than ten years, or both.".

(d) Section 845(a) of title 18, United States Code, is amended—

(1) by striking "and" at the end of paragraph (5) thereof;

(2) by striking the period at the end of paragraph (6); and by inserting in lieu thereof the following: "; and"; and

(3) by adding at the end thereof the following:

"(7) the provisions of subsection (l) of section 842 of this title shall apply to paragraphs (4) and (5) of this subsection.".

IMPLEMENTATION OF MONTREAL CONVENTION

SEC. 304. The President shall develop standards and programs to insure the full implementation of the provisions of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (Montreal, September 23, 1971).

AIRCRAFT SABOTAGE

SEC. 305. (a) Section 31 of title 18, United States Code, is amended—

(1) by striking out the words "Civil Aeronautics Act of 1938" and inserting in lieu thereof the words "Federal Aviation Act of 1958";

(2) by striking "and" at the end of the third undesignated paragraph thereof;

(3) by striking the period at the end thereof and inserting in lieu thereof ";"; and

(4) by adding at the end thereof the following:

"'In flight' means any time from the moment all the external doors of an aircraft are closed following embarkation until the moment when any such door is opened for disembarkation. In the case of a forced landing the flight shall be deemed to continue until competent authorities take over the responsibility for the aircraft and the persons and property aboard.

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"'In service' means any time from the beginning of pre-flight preparation of the aircraft by ground personnel or by the crew for a specific flight until twenty-four hours after any landing; the period of service shall, in any event, extend for the entire period during which the aircraft is in flight.".

(b) Section 32, title 18, United States Code, is amended to read as follows:

"Whoever willfully sets fire to, damages, destroys, disables, or interferes with the operation of, or makes unsuitable for use any civil aircraft used, operated, or employed in interstate, overseas, or foreign air commerce; or willfully places a destructive substance in, upon, or in proximity to any such aircraft which is likely to damage, destroy, or disable any such aircraft, or any part or other material used, or intended to be used, in connection with the operation of such aircraft; or willfully sets fire to, damages, destroys, or disables any air navigation facility or interferes with the operation of such air navigation facility, if any such act is likely to endanger the safety of such aircraft in flight; or

"Whoever, with intent to damage, destroy, or disable any such aircraft, willfully sets fire to, damages, destroys, or disables or places a destructive substance in, upon, or in the proximity of any appliance or structure, ramp, landing area, property, machine, or apparatus, or any facility, or other material used, or intended to be used, in connection with the

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operation, maintenance, or loading or unloading or storage of any such aircraft or any cargo carried or intended to be carried on any such aircraft; or

"Whoever willfully performs an act of violence against or incapacitates any passenger or member of the crew of any such aircraft if such act of violence or incapacitation is likely to endanger the safety of such aircraft in service; or

"Whoever willfully communicates information, which he knows to be false, thereby endangering the safety of any such aircraft while in flight; or

"Whoever willfully attempts to do any of the aforesaid acts—shall be fined not more than $10,000 or imprisoned not more than twenty years, or both.".

(c)(1) Chapter 2, title 18, United States Code, is amended by adding a new section after section 32 to read as follows:

"**§ 32A. Offenses in violation of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation**

"(a) Whoever commits an offense as defined in subsection (b) against or on board an aircraft registered in a state other than the United States and is afterward found in this country—

shall be fined not more than $10,000 or imprisoned not more than twenty years, or both.

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"(b) For purposes of this section a person commits an 'offense' when he willfully—

"(1) performs an act of violence against a person on board an aircraft in flight if that act is likely to endanger the safety of that aircraft; or

"(2) destroys an aircraft in service or causes damage to such an aircraft which renders it incapable of flight or which is likely to endanger its safety in flight; or

"(3) places or causes to be placed on an aircraft in service, by any means whatsoever, a device or substance which is likely to destroy that aircraft, or to cause damage to it which renders it incapable of flight, or to cause damage to it which is likely to endanger its safety in flight; or

"(4) attempts to commit, or is an accomplice of a person who commits or attempts to commit, an offense enumerated in this subsection.".

(2) The analysis of chapter 2 of title 18 of the United States Code is amended by adding after item

"32. Destruction of aircraft or aircraft facilities."

the following new item:

"32A. Offenses in violation of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation.".

(d) Section 101(34) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1301(34)), relating to the definition of

the term "special aircraft jurisdiction of the United States," is amended as follows:

(1) by deleting the word "or" at the end of subsection (d)(i);

(2) by deleting the word "and" at the end of subsection (d)(ii) and inserting in lieu thereof the word "or"; and

(3) by adding a new subsection (d)(iii) as follows:

"(iii) regarding which an offense as defined in subsection (d) or (e) of article I, section I of the (Montreal) Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation is committed: *Provided,* That the aircraft lands in the United States with an alleged offender still on board; and".

(e) Section 902(k) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1472(k)), is amended by adding subsection (3) to the end thereof, to read as follows:

"(3) Whoever while aboard an aircraft in the special aircraft jurisdiction of the United States commits an act which would be an offense under section 32 of title 18, United States Code, shall be punished as provided therein.".

(f)(1) Chapter 2 of title 18, United States Code, is amended by adding at the end thereof the following new section:

"§ 36. **Imparting or conveying threats**

"(a) Whoever imparts or conveys or causes to be imparted or conveyed any threat to do an act which would be a felony prohibited by section 32 or 33 of this chapter or section 1992 of chapter 97 or section 2275 of chapter 111 of this title with an apparent determination and will to carry the threat into execution shall be fined not more than $5,000 or imprisoned not more than five years, or both.".

(2) The analysis of chapter 2 of title 18 of the United States Code is amended by adding at the end thereof the following new item:

"36. Imparting or conveying threats.".

AIRCRAFT PIRACY

SEC. 306. (a) Section 901 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1471), is amended by adding at the end thereof the following new subsections:

"(c) Whoever imparts or conveys or causes to be imparted or conveyed false information, knowing the information to be false, concerning an attempt or alleged attempt being made or to be made, to do any act which would be a crime prohibited by subsection (i), (j), (k), or (l) of section 902 of this Act, shall be subject to a civil penalty of not more than $1,000 which shall be recoverable in a civil action brought in the name of the United States.

"(d) Except for law enforcement officers of any municipal or State government, or the Federal Government, who are authorized or required within their official capacities to carry arms, or other persons who may be so authorized under regulations issued by the Administrator, whoever, while aboard, or while attempting to board, any aircraft in, or intended for operation in, air transportation or intrastate air transportation, has on or about his person or his property a concealed deadly or dangerous weapon, which is, or would be, accessible to such person in flight shall be subject to a civil penalty of not more than $1,000 which shall be recoverable in a civil action brought in the name of the United States.".

(b) Subsection (a) of section 1395 of title 28, United States Code, is amended by striking the period at the end of such subsection and adding the following: ", and in any proceeding to recover a civil penalty under section 35(a) of title 18 of the United States Code or section 901(c) or 901(d) of the Federal Aviation Act of 1958, all process against any defendant or witness, otherwise not authorized under the Federal Rules of Civil Procedure, may be served in any judicial district of the United States upon an ex parte order for good cause shown.".

(c)(1) Section 902(m) of the Federal Aviation Act of 1958 (49 U.S.C. 1472(m)) is amended to read as follows:

"FALSE INFORMATION AND THREATS

"(m)(1) Whoever willfully and maliciously, or with reckless disregard for the safety of human life, imparts or conveys or causes to be imparted or conveyed false information knowing the information to be false, concerning an attempt or alleged attempt being made or to be made, to do any act which would be a felony prohibited by subsection (i), (j), or (l)(2) of this section, shall be fined not more than $5,000 or imprisoned not more than five years, or both

"(2) Whoever imparts or conveys or causes to be imparted or conveyed any threat to do an act which would be a felony prohibited by subsection (i), (j), or (l)(2) of this section, with an apparent determination and will to carry the threat into execution, shall be fined not more than $5,000 or imprisoned not more than five years, or both.".

(2) The table of contents of the Federal Aviation Act of 1958, in the matter of title II (subchapter IX, chapter 20 of title 49, United States Code, section 1472(m)), is amended by redesignating

"(m) False information."

to read

"(m) False information and threats.".

(d) Section 903 of the Federal Aviation Act of 1958 (49 U.S.C. 1473) is amended by striking "Such" at the beginning of the second sentence of subsection (b)(1) of that section, and substituting therefor "Except with respect to civil penalties under section 901 (c) and (d) of this Act, such".

TITLE IV—REORGANIZATION OF THE DEPARTMENT OF STATE

ESTABLISHMENT OF OFFICE FOR COMBATING INTERNATIONAL TERRORISM

SEC. 401. (a) There is hereby established in the Department of State an Office for Combating International Terrorism (hereinafter referred to as the "Office"), which shall be headed by an Assistant Secretary of State, appointed by the President, by and with the advice and consent of the Senate.

(b) Section 5315(22) of title 5, United States Code, is amended by striking out "(11)" and inserting in lieu thereof "(12)".

OFFICE FUNCTIONS

SEC. 402. The Office shall—

(a) coordinate, supervise, and insure the efficient management, implementation, and development of all antiterrorist policies, programs, and activities of the Department of State;

(b) work closely with the Council to Combat Terrorism, in assisting that Council in the performance of its functions; and

(c) assist the President in the implementation of section 105 and the other provisions of this Act.

PRIORITIES FOR NEGOTIATION OF INTERNATIONAL AGREEMENTS

SEC. 403. (a) The President is hereby urged to seek international agreements to assure more effective international cooperation in combating terrorism.

(b) High priority in the negotiation of such agreements should be given to agreements which include, but which need not be limited to the following:

(1) establishment of a permanent international working group, including subgroups on topics as may be appropriate, including but not limited to, law enforcement and crisis management, which would combat international terrorism by—

(A) promoting international cooperation among countries; and

(B) developing new methods, procedures, and standards to combat international terrorism;

(2) establishment of means to effect observance of—

(A) the Convention for the Suppression of Unlawful Seizure of Aircraft (The Hague, December 16, 1970);

(B) the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (Montreal, September 23, 1971); and

(C) the Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents (New York, December 14, 1973);

(3) establishment of international legal requirements to prohibit and punish the act of taking hostages.

SECTION-BY-SECTION ANALYSIS OF THE
"OMNIBUS ANTITERRORISM ACT OF 1979"

Sec. 1. This section provides that this act shall be named the "Omnibus Antiterrorism Act of 1979."

Sec. 2. Table of Contents.

Sec. 3. Declaration of Findings.

This section lists the findings of Congress. The findings include: that terrorism has caused and resulted in violations of human rights, the killing of innocent people, and threats presented to an orderly, civilized world. Also found is the need for top-level, federal coordination of policy planning and implementation to combat terrorism, and therefore the need for the creation of the Council for Combating Terrorism and the creation of the positions of Assistant Secretary of State, Assistant Secretary of Transportation, and Assistant Attorney General. Further findings include: certain nations have shown support for terroristic acts; some nations have not implemented effective security measures in their international airports; and economic sanctions should be established against countries which aid, abet or harbor terrorists.

Sec. 4. Declaration of Purposes.

The Act will strengthen U.S. federal capacities in policy and planning, coordination, intelligence gathering, and response by creating a permanent Council for Combating Terrorism under the Executive Office of the President, and by establishing offices in the Departments of State, Transportation, and Justice, each to be headed by an Assistant Secretary and,

in the case of the Department of Justice, by an Assistant Attorney General.

Further, the purpose of this act is to link the U.S. policies and objectives concerning terrorism with those of the world community, to provide for strong U.S. unilateral steps to be taken against states which support terrorist activities, and to take a lead in the international community to demonstrate that the U.S. is committed to solving the problems of terrorism.

Sec. 5. Definitions.

In this section, the definition of "international terrorism" is comprised of five component parts. First, the definition includes those of three international conventions: The Hague Convention, 1970, The Montreal Convention, 1971, and the Convention of the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents, 1973.

Second, the definition includes descriptions of other unlawful actions including all possible forms of terrorism, such as bombing, kidnapping, or obstruction of commerce.

Third, the definition concerns itself with the international context in which the act must take place.

Fourth, the definition explains that the act performed, in order to be considered an act of international terrorism, must threaten the interests of a state or an international organization.

Fifth, the definition sets out that essentially military operations are not to be considered acts of international terrorism.

The definition of "state support of international terrorism" means that any state shall be considered supportive of terrorism if the state deliberately furnishes arms, explosives, training, or lethal substances, planning, directing, providing assistance, or use of diplomatic facilities, financial support or sanctuary from extradition to persons who will very likely commit acts of terrorism.

TITLE I - REORGANIZATION OF EXECUTIVE OFFICE OF THE PRESIDENT

Sec. 101. Establishment of Council to Combat Terrorism.

This section establishes, in the Executive Office of the President, the Council to Combat Terrorism, placing it under the supervision and direction of the Assistant to the President for National Security Affairs.

Sec. 102. Council Functions.

Listed in this section are the six functions of the proposed Council. They include: assisting the President in implementing this Act; assisting in the preparation of the Lists of States Supporting International Terrorism; coordinating and evaluating ongoing activities and programs pertaining to terrorism; insuring that the U.S. government can react appropriately to terrorist acts affecting U.S. citizens or property; and making recommendations to the Director of the Office of Management and Budget concerning the funding of any antiterrorist programs.

Sec. 103. Council Membership.

Listed in this section are the members of the proposed Council. They are:

1) the Assistant to the President for National Security Affairs;
2) the Secretary of State;
3) the Secretary of the Treasury;
4) the Secretary of Defense;
5) the Attorney General;
6) the Secretary of Transportation;
7) the United States Ambassador to the United Nations;
8) the Director of Central Intelligence;
9) the Assistant to the President for Domestic Affairs;
10) the Director of the Federal Bureau of Investigation.

Sec. 104. Report on Acts of International Terrorism.

This section describes the annual report to be prepared by the President for submission to Congress. The report shall describe in detail any acts of international terrorism involving U.S. citizens or interests, the countries involved, their roles, and the response of the U.S.

Sec. 105. List of States Supporting International Terrorism.

This section describes the annual list of states supporting international terrorism to be prepared by the President for the Congress. The report will list any states found to be supportive of terrorism and describe any sanctions placed upon those states. The President may at any time add a country to the list provided that the addition and an explanation are reported to the Congress. The President may remove

a country from the list, provided Congress does not disapprove of the removal by concurrent resolution.

Sec. 106. Sanctions Against States Supporting International Terrorism.

Sanctions to be placed upon states supporting international terrorism and listed according to Sec. 105, are automatic. The sanctions include: providing no assistance under the Foreign Assistance Act of 1961, denying military sales and training as provided for in the Arms Export Control Act, extending no duty free treatment as provided for in the Trade Act of 1974, approval of no export licenses for the export of commodities or technical data which would enhance the military potential of the foreign government, and permitting no entry to the United States of any nationals of such country for the purpose of acquiring training in the nuclear sciences or subjects of military applicability.

If the President finds that national security dictates, the waiver of sanctions may be so done providing the President consults the Congress beforehand.

The President is charged with the duty of combating international terrorism and reducing the number of states supportive of international terrorism. He would be required to seek appropriate diplomatic actions and other measures to achieve this goal, taking into account the U.S. relations with the nations involved while pursuing his goals.

Sec. 107. Report on Federal and International Capabilities to Combat Terrorism.

This section requires a report on Federal and International

Capabilities to Combat Terrorism, to be submitted biannually to Congress by the President. The report shall review and evaluate federal policies, programs, organizational structures, and response capabilities. Also, the report shall assess the effectiveness and capabilities of the International Civil Aviation Organization and other international programs aimed at establishing proper airport security standards to combat terrorist activities.

Sec. 108. Transfer of Existing Functions and Property.

Under this section, the functions, authorities, records, personnel, and property of the Cabinet Committee to Combat Terrorism are transferred to and vested in the Council to Combat Terrorism.

TITLE II - REORGANIZATION OF THE DEPARTMENT OF TRANSPORTATION

Sec. 201. Establishment of Office for Combating Terrorism.

An Office for Combating Terrorism is established in the Department of Transportation. The office is to be headed by an Assistant Secretary.

Sec. 202. Office Functions.

The office shall work with and assist the Council to Combat Terrorism by coordinating, developing and implementing all anti-terrorist policies of the Department of Transportation.

Sec. 203. Information on Airport Security.

This section amends Sec. 1115 of the Federal Aviation Act of 1958 by requiring the Secretary of Transportation to study and assess the effectiveness and maintenance of security measures used in foreign airports serving U.S. planes or serving any

foreign aircraft flying into the United States. In making these assessments, he is required to consider the effectiveness of security at United States airports and shall consider other specific criteria, including those standards agreed upon at the Convention of International Civil Aviation. If deficiencies are noted, the Secretary shall recommend to the foreign authorities measures to upgrade their security system. Should the foreign officials not act upon the recommendations of the Secretary, the Secretary shall make public the deficiencies of the airport, and with the approval of the Secretary of State, may hold, revoke or impose operating conditions on the authority of any carrier or foreign air carrier to engage in transportation at that airport.

The Secretary's report to Congress shall identify all airports assessed, their deficiencies, and any actions taken or recommended. All actions taken by the Secretary shall be promptly reported to the Congress.

Sec. 204. Aviation Security Assistance to Foreign Governments.

The Secretary of Transportation is authorized to provide technical aviation security assistance to foreign countries. The assistance may consist of conducting surveys to measure the quality of security or training foreign nationals in the field of aviation security. Should the training be held in the U.S., travel and subsistence expenses may be provided for by the Secretary, who may or may not request reimbursement from the foreign country.

TITLE III - REORGANIZATION OF THE DEPARTMENT OF JUSTICE

Sec. 301. Establishment of Office of Combating Terrorism.

This section establishes, in the Department of Justice, an Office for Combating Terrorism, to be headed by an Assistant Attorney General.

Sec. 302. Office Functions.

The office shall work with and assist the Council to Combat Terrorism by coordinating, developing and implementing anti-terrorist policies of the Department of Justice.

Sec. 303. Explosive Taggants.

This section amends section 841 of title 18, United States Code, by defining and requiring the use of identification and detection taggants in explosives. A detection taggant is defined as a substance added to explosive material permitting detection of the explosive material prior to its detonation. An identification taggant is defined as a substance added to an explosive material which can be retrieved after detonation, decoded and traced back to the manufacturer.

The following are descriptions of subsections amending section 842 of title 18, United States Code:

(l) This section declares that one year after the enactment of this Act it shall be unlawful to manufacture explosive material that does not contain an identification taggant.

(m) This section declares that two years after the enactment of this Act it shall be unlawful to manufacture explosive material that does not contain a detection taggant.

(n) This section declares that two years after the enact-

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ment of this Act it shall be unlawful to transport or to receive any explosive material not containing an identification taggant.

(o) This section declares that three years after the enactment of this Act it shall be unlawful to transport or to receive any explosive material not containing a detection taggant.

(p) This section declares that one year after the enactment of this Act it shall be unlawful to import any explosive material not containing an identification taggant.

(q) This section declares that two years after the enactment of this Act it shall be unlawful to import any explosive material not containing a detection taggant.

(r) This section declares that two years after the enactment of this Act it shall be unlawful to resell or dispose of explosive material sold as surplus by a military service not containing an identification taggant.

(s) This section declares that three years after the enactment of this Act it shall be unlawful to resell or dispose of explosive material sold as surplus by a military service not containing a detection taggant.

(t) This section declares that the time periods for paragraphs (1) through (s) may be extended by the Secretary until the taggants meet his specifications of quality, quantity, and safety.

(u) This section declares that paragraphs (1) through (q) shall not apply to military explosives used by the Department of Defense.

Sec. 304. Implementation of Montreal Convention.

This section provides that the President shall create programs and policies in order to insure the full implementation of the provisions accepted in the Montreal Convention, 1971.

Sec. 305. Aircraft Sabotage.

This section proposes amendments to existing law, title 18, United States Code, to implement the provisions adopted at the Montreal Convention.

Subsection (a) adds the definitions of "in flight" and "in service" as an amendment to title 18, United States Code, making it more clear and precise. The amended section lists specific acts of air terrorism (such as bombing, damaging civil aircraft or endangering the lives of passengers or crew members), and declares that an offender shall be fined not more than $10,000 or imprisoned not more than twenty years, or both.

Subsection (c)(1) amends chapter 2, title 18, United States Code, by adding a new section 32A. Jurisdiction is established over anyone committing any offense described in 32A(b), provided the offender is on board a foreign registered aircraft that is found afterward in this country. Offenses described in 32A(b) include: willfully endangering or attempting to endanger the safety of an aircraft in flight by performing an act of violence against a person on board an aircraft; by destroying or damaging an aircraft; or by placing any device on an aircraft in service that is likely to destroy that aircraft. An offender shall not be fined more than $10,000 or imprisoned not more than 20 years, or both.

4 OF 5

Subsections (d) and (e) further implement proposals set forth in the Montreal Convention by amending the Federal Aviation Act of 1958.

Subsection (f) amends chapter 2, title 18, of the United States Code by declaring it a felony to convey threats of destruction or disablement of aircraft or related facilities.

Sec. 306. Aircraft Piracy.

This section amends section 901 of the Federal Aviation Act of 1958 by adding new subsections declaring it illegal to impart or convey false information, knowing that information to be false and also declaring it illegal for an unauthorized person to board an aircraft with a concealed, dangerous weapon.

Also amended is title 28, United States Code, section 1395(a) by providing that all process against any defendant or witness could be served, not only at the place of residence of the defendant but also in the district where the violation occurred.

Sec. 902(m) of the Federal Aviation Act is also updated to agree with proposed laws in this section.

TITLE IV -- REORGANIZATION OF THE DEPARTMENT OF STATE

Sec. 401. Establishment of Office for Combating International Terrorism.

This section establishes an Office for Combating International Terrorism in the Department of State, to be headed by an Assistant Secretary of State.

Sec. 402. Office Functions.

The office shall work with and assist the Council to Combat

Terrorism by coordinating, developing and implementing anti-terrorist policies of the Department of State.

Sec. 403. Priorities for Negotiation of International Agreements.

This section sets some Presidential priorities to be considered in negotiating international agreements, including: the establishment of a permanent international working group to promote cooperation among countries and to develop new response methods to combat international terrorism; the observance of the Hague Convention, 1970, the Montreal Convention, 1971, and the Convention of the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents, 1973; and the establishment of international laws prohibiting the taking of hostages.

Department of Justice

STATEMENT OF

MARY C. LAWTON
DEPUTY ASSISTANT ATTORNEY GENERAL
OFFICE OF LEGAL COUNSEL

BEFORE THE

COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

S. 333

OMNIBUS ANTITERRORISM ACT OF 1979

March 30, 1979

Mr. Chairman and Members of the Committee:

The Department of Justice appreciates the opportunity to submit this statement concerning S. 333, the Omnibus Antiterrorism Act of 1979. We worked closely with this Committee and other Committees of both the Senate and House of Representatives last year on the predecessor bill and we look forward to working with you again in an effort to enact effective antiterrorism legislation.

Many provisions of S. 333 are within the primary expertise of other agencies in the Executive Branch which will address them in greater detail for this Committee. This statement will be confined, for the most part, to provisions of the bill directly affecting concerns of the Department of Justice. First among these is the provision in section 105(e) which subjects a Presidential "proposal" to remove a country from the list of those supporting international terrorism to a congressional veto by concurrent resolution. In the opinion of the Department of Justice, this provision is unconstitutional.

As drafted the provision could be read in one of two ways: either the President has been given authority to

determine which countries belong on the list but Congress can veto some of his determinations, or the President has only been given authority to place countries on the list but only Congress can remove countries from the list. In either case, the provision is constitutionally defective.

If authority has been conferred upon the President by statute to place countries on the list and remove them from it, the responsibility to exercise that authority is vested in him by Article II, §3 of the Constitution. The Congress may revoke the authority granted by statute, but only by enacting another statute in the manner prescribed by Article I, §7, that is, the action of both Houses and the approval of the President or the override of his veto. Accordingly, if the intent of S. 333 is to confer on the President the authority to determine which countries should properly be listed as supporting international terrorism, placing names on the list or removing them as the facts warrant, the making of these determinations becomes an exercise of his constitutional authority to execute the laws. Congress

may not limit this authority or review its exercise except by a full legislative act — a statute or joint resolution subject to his approval. This is the sole method prescribed by the Constitution for altering the functions conferred on the President by statute or otherwise exercising oversight over his execution of the law.

If the bill intends to confer on the President the power to place nations on the list but to retain in Congress the power to remove nations from the list, it is likewise defective. As drafted, the bill provides for negative action only. That is, Congress could be silent and a country would presumably cease to be on the list, but Congress could, by concurrent resolution, retain a name on the list. This is inconsistent with the method of legislating prescribed in Article I. Under the Constitution, the Congress must act in order to exercise its legislative role; it cannot legislate by silence. Moreover, every act of Congress "shall, before it becomes a Law, be presented to the President of the United States." If, then, Congress intends that only it may remove names from the list of nations supporting terrorism, it must provide for removal by statute.

Congress could, we assume, establish the list directly by statute, reserving as always the power to amend the list by statute. Congress may also confer the authority on the President to establish such a list or to delete countries from it. But if this authority is conferred on the President by statute, a statute is required to revoke it or to control the exercise of power under it. If Congress wishes to be advised of contemplated actions of the President so that it may have forewarning in order to prevent the President's action by alteration of his authority, then this should be accomplished by requiring a notice, as provided in section 105(e) and an alteration by joint resolution. This is the method prescribed by the Constitution for maintaining the checks and balances among the separate but co-equal branches of Government.

Title III of the bill would create a new Office in the Department of Justice, headed by an Assistant Attorney General, to coordinate all antiterrorism plans and policies of the Department. In our view, the creation of such a new office is unnecessary and undesirable. Presently responsibility for developing policies on terrorism,

working with the National Security Council Working Group on Terrorism, and supervising Department of Justice response to specific investigations is vested in the Deputy Attorney General, the second ranking official in the Department. We view the assignment of responsibility at such a high level as commensurate with the importance of our antiterrorism efforts.

Since the Deputy Attorney General has continuing supervisory responsibility over, among others, the Federal Bureau of Investigation, the Criminal Division, the Law Enforcement Assistance Administration, the United States Marshals, and the Executive Office of U.S. Attorneys, elements of the Department having a role in the efforts to combat terrorism, it is important that he bear the responsibility for coordinating the Department's efforts in this regard. The creation of a new and separate office would only serve to diffuse responsibility at a lower level with more limited authority.

We are pleased to see that section 303 of the bill contains authority to require identification and detection taggants in explosives, as technology makes this feasible. The primary responsibility for these provisions rests with

the Department of the Treasury, but the Department of Justice is convinced that taggant requirements could provide important assistance to the entire law enforcement community in preventing terrorist incidents and apprehending those responsible.

Sections 305 and 306 of the bill contain provisions which the Department of Justice recommended to the Congress in 1977 to implement the Montreal Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation. We wholeheartedly endorse these provisions and urge their enactment.

Articles 1 and 5 of the Montreal Convention obligate each contracting state to take such measures as may be necessary to establish jurisdiction over certain offenses. Specifically, Article 1 proscribes certain acts such as damaging or destroying aircraft or navigation facilities, or committing violence against persons aboard aircraft, if such acts are likely to result in endangering the safety of the aircraft. Section 1(2) of Article 5 requires that each contracting state establish jurisdiction "when the offense is committed in the territory of that state." To a great extent 18 U.S.C. 32 and related laws already make unlawful the offenses enumerated in Article 1.

However, because of certain significant gaps in our existing law it is necessary to amend 18 U.S.C. 32 to achieve complete conformity. For example, S. 333 would amend that section by substituting for the present requirement of proving intent to damage an aircraft, the standard of the Montreal Convention — namely, the conduct involved would be likely to damage the aircraft.

Article 5 of the Convention obligates each contracting state to establish jurisdiction over offenses when they are committed aboard an aircraft registered in that state and also "where the aircraft on board which the offense is committed lands in its territory with the alleged offender still on board." This latter requirement is met in S. 333 by creation of a new section 32A of Title 18, United States Code, which extends jurisdiction over offenses against the safety of aircraft to crimes committed on foreign registered aircraft where the offender is later found in the United States. This extension of jurisdiction will enable us to deal with international terrorists who are subsequently apprehended in the United States.

Aside from the Convention obligations, S. 333 would add a new provision to the code proscribing threats to destroy aircraft, proposed 18 U.S.C. 36, would provide

civil penalties for certain aircraft hijack hoaxes and attempts to carry concealed weapons aboard aircraft and would establish special venue provisions in proceedings to enforce civil penalties. We believe these civil penalties will provide a real aid to enforcement in those instances where the motive of the individual is not perceived by juries to be truly criminal and the juries are therefore unlikely to convict him of a criminal offense.

Aside from the foregoing comments, the Department of Justice has one rather technical concern with S. 333, as presently drafted. Sections 104 and 105 of the bill require reports to the Congress but contain protection for classified information and information relating to criminal investigations. As drafted, however, the protection for information relating to criminal investigations may be inadequate to protect pending cases from premature disclosure. The bill would protect only that information exempted from disclosure by subsection (b)(7) of the Freedom of Information Act, 5 U.S.C. 552. That Act, by its terms, is inapplicable to disclosures to the

Congress, 5 U.S.C. 552(c). Accordingly, the literal terms of the bill would not authorize the exclusion of information relating to pending cases, even grand jury information, from the report to Congress required by the bill. We are sure that this is not the intent of the Committee.

The Department of Justice will be pleased to respond to any questions of the Committee.

Fire Marshals Association of North America
1600 M Street, N.W. — Suite 570 South — Washington, D.C. 20036

Statement Submitted for the Record

by the

Fire Marshals Association of North America

to the

Senate Governmental Affairs Committee

regarding

S.333
Omnibus Antiterrorism Act of 1979

April 25, 1979

Organized 1906, reorganized 1927 as a Section of the National Fire Protection Association

The Fire Marshals Association of North America appreciates the opportunity to submit comments on S.333, the Omnibus Antiterrorism Act of 1979. The Association specifically limits its comments to Section 303 entitled, Explosive Taggants. This section impacts directly on the duties and responsibilities of the members of the Fire Marshals Association of North America.

As a matter of background, the Fire Marshals Association of North America (FMANA) was organized in 1906, and in 1927, became associated with the National Fire Protection Association. The membership of the Fire Marshals Association of North America is composed of state, county, and local fire marshals and designated members of their staff.

Fire Marshals are officials with statutory responsibilities which include:

- the enforcement of fire codes
- review of building construction fire safety plans
- fire prevention inspections
- fire cause and arson investigations
- fire data collection
- fire legislation development

Fire Marshals also provide advice to other officials or agencies within a jurisdiction on matters concerning firesafety, and are responsible for public firesafety education.

In many state, county, or local jurisdictions, the Fire Marshal is the official assigned responsibility for explosives licensing; for the issuance of permits for storage, transportation, or use of exglosives; for the certification of blasters; and the investigation of incidents involving the theft, misuse, or malicious use of explosives.

The state, county, or local Fire Marshal is the public officer charged with the responsibility for determining the cause of fires and explosions that occur within their jurisdiction. The search for evidence at a fire scene or at the site of an explosion is often difficult.

Any process or procedure which facilitates the gathering of evidence at an explosive incident or allows the ready detection and identification of explosives, expedites the investigation conducted by the Fire Marshal. We realize that identification tagging is not designed to replace existing bomb scene investigation techniques, but to provide an accurate and simple method of supplementing the information gathering process.

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Present methods of collection and analysis of explosive residues can and do provide critical information as to the type of explosive used in an incident. However, the present coding methods do not assist the investigative agency in tracing the product chain from manufacturer, through the distributor, to the legal or illegal user following the blast. Taggants provide this ready trace mechanism.

The Fire Marshals Association of North America strongly endorses the concept of providing readily identifiable taggants for explosive materials in order to assist in the detection and identification of explosive materials.

Study of the Removal of Taggants from Explosives

David J. Edwards
The Aerospace Corporation

The samples of various taggant recovery tests performed by Rollins and Associates as described in his letter of 16 March 1979 (attached) were examined in their Rolla, Missouri test facility. There were two sticks each of Atlas 60% extra and Independent E explosives. There were three (3) samples from each stick. The first sample for sticks 1-3 consisted of material removed from the sticks by Dr. Rollins in an attempt to remove taggants using a normal light and tweezers. In the case of the fourth stick, a normal light and a magnet was used.

The second sample from each stick was material collected using a UV light and strong magnet (samorium-cobalt magnet). Because the UV light made the taggants visible, Dr. Rollins could be confident that taggants were being retrieved.

For sticks 2 and 3 the third sample consisted of the residue obtained by slurrying the detagged explosive in water and retrieving any remaining taggants with a magnet. For sticks 1 and 4 the third samples consisted of residue collected from the firing chamber following a shot using detagged explosive.

Each of these residues was carefully examined and the number of taggants was counted and recorded in the attached table. The number of tags found in each sample are listed in the attached table.

Samples 1,2,4,5,6,7,9, and 10 required no additional work to enable us to count the taggants in the sample. Sample 3, which failed to detonate in the chamber, had most of the original explosive present. This sample was slurried with water and the taggant removed with a magnet. Samples 8 and 11 had enough explosive material adhering to the taggants that to facilitate counting, the samples were slurried in water and the taggants were removed with a magnet. Sample 12 which was detonated in the firing chamber, had the normal amount of paint chips from the chamber. This sample was, as before, slurried in water and taggants were removed with a magnet.

There appears to be quite a discrepancy in the number of tags in the Atlas 60% Extra samples 8 and 11. This material was one of the earliest tagged in our program. It appears that the stick of dynamite corresponding to sample 11 had only ~0.005% taggant. This low percentage is reflected in sample 12 which was the detonated sample.

One very interesting feature was the amount of taggant left in the water slurry from samples 6 and 9. Apparently, the taggants are attached to some of the explosive ingredients. The extra weight of the attached explosive prevents them from being picked up by a magnet.

In any case complete removal of taggants appears to be impractical short of heroic efforts. In all instances 10-15% of the original taggants were left in the explosive after laborious removal efforts, and 2-6% of the original number of taggants were recovered after detonation of the detagged explosive.

16 March 1979

Dave Edwards
The Aerospace Corporation
Re: Atlas 60% Extra taggant retrieval

The tags contained in two sticks of Atlas 60% Extra dynamite have been separated and recovered as described below. The sticks were 2" X 8" and marked 070 6 77 R2.

Both charges were unwrapped and spread out in 2 yellow Kodak Duraflex trays, 12.5" wide by 14.5" long by 2.5" high. It is a granular material, gray in appearance, and cakes like fine moist sand. Visible particles consist of spherical whitish-yellow particles and smaller dark (black) particles. A small quantity of the explosive was spread out in a thin layer and some of the tiny dark specks were removed using a small screwdriver, a pair of tweezers, and by separating them and picking them up by a finger. Microscopic examination disclosed the black particles have the appearance of pulverized coal and the spherical particles are ammonium nitrate prills. No tags were visible upon exposing the separated particles to the long wavelength (366 nm) ultraviolet light. It is a slow, tedious process to separate the black specks. Exposure to the nitroglycerine fumes causes headaches and bending over the spread out material causes aching back and shoulders. It is estimated that more than 50 hours would be required to separate most of the tiny dark specks from a single stick of the 2" X 8" Atlas 60% Extra dynamite if someone wanted to remove them.

The tags are not visible to the eye and microscopic examination of the explosive reveals that the tags have explosive material adhering to them and are stuck to clumps of material rather than occurring as scattered loose tags that are easily separated.

The spread out powder in the tray was exposed to the ultraviolet light, using the long wavelength (366 nm), and the visible tags were removed using the magnetic bar from the magnetic broom inside a plastic bag and a magnetic probe. Although the tags that are on edge or have the fluorescent side up are readily visible under the light, some 8 hours

were spent separating the tags from the first stick of explosive. A flat wooden stick 5/8" wide by 5 1/2" long was used to spread and move the explosive around in the tray exposing the concealed tags.

After all visible tags were removed the explosive was reloaded into the original wrapper to the original density by pressing it, suspended in the cleaned and painted blast chamber and fired by a C-4 electric blasting cap (13.5 grains). It was a good shot.

The original charge weight was 458 grams. The collected residue after shooting in the chamber was 23.3 g. No tags were readily visible in the residue. The microscope revealed charred solid pieces, paint flecks, masking tape fragments, charred coal (?) particles, and some fibrous material.

The second 2" X 8" stick of Atlas 60% Extra (462 g) was treated exactly as the first down to where the explosive from the first stick was reloaded into its original wrapper. At this point, the detagged explosive from the second stick was slurried with water, dissolving the ammonium nitrate and revealing additional tags that were collected and placed in a separate plastic bag. This indicates there are possibly tags in the residue from the detonated material.

The entire effort for both sticks required some 24 hours of tiring, tedious, headachy effort. About 1 hour was spent on each stick in collecting black particles, about 9 hours each on collecting tags, and 2 hours each in shooting, collecting residue and slurrying and collecting tags. The wet tags are more difficult to retrieve than dry ones and some seem to have lost their magnetic layer or didn't have one.

Re: Independent E -K type taggant retrieval

A single stick, 1 1/2" X 12", of the K type material was cut in half. The first half weighed 208.8 g. and the second half was 213.3 g.

Each half was divided into thirds and spread out in a thin layer on pieces of paper revealing spherical ammonium nitrate prills, brownish "damp sand" appearing material and small black particles but much less than for the Atlas 60% Extra material. The entire material was searched

for the black particles and about 40 were collected in an hour. The microscope showed black particles (pulverized coal ?), dark brown (nitroglycerine saturated ammonium nitrate prills ?), and ammonium nitrate fines. No tags were visible with or without the ultraviolet light.

The light (366 nm) was then used to make the tags visible and they were collected by the magnetic bar and the magnetic probe as before. The tags are coated and stick to explosive clumps that have to be physically crushed in order to retrieve the tags. The same tiring effort was necessary to retrieve the tags although there was less material and less time was required, 6 to 7 hours per half stick of explosive. Some of the nitroglycerine was absorbed by the paper and when material from the first half was loaded and tamped back into the original wrapper and fired by a C-4 cap it failed (partial reaction). This Independent E material is also over 2 years old.

The scattered residue was collected from the chamber and weighed 164.3 g. as compared to the original weight of 208.8 g.

The second half was treated identical to the first half down to where the detagged material was slurried with water rather than reloading it. The water dissolved the ammonium nitrate and revealed additional tags that were retrieved by the magnetic probe and placed in a separate plastic bag.

The effort for the Independent E material required about 20 hours of effort since there was less total material to handle than the 60% Extra charges. These wet tags are also more difficult to retrieve than the dry ones and some seem not to be magnetic.

Ronald R. Rollins

Ronald R. Rollins
Senior Investigator

	Sample	Explosives	Recovery Method	No. of Taggants
stick 1	1	Independent E	Normal light & tweezer	0
	2	" "	UV light and magnet	1371
	3	" "	Residue from firing chamber	93
stick 2	4	Independent E	Normal light & tweezer	0
	5	" "	UV light and magnet	1705
	6	" "	water slurry & magnet	235*
stick 3	7	Atlas 60% Extra	Normal light & tweezer	0
	8	" "	UV light and magnet	2000
	9	" "	water slurry & magnet	82**
stick 4	10	Atlas 60% Extra	Normal light & magnet	4
	11	" "	UV light and magnet	291
	12	" "	Residue from firing chamber	5

*~20 additional taggants were still visible in water slurry

** 100-200 additional taggants were still visable in water slurry

STATEMENT OF G. R. DICKERSON, DIRECTOR, BUREAU OF ALCOHOL, TOBACCO AND FIREARMS, DEPARTMENT OF THE TREASURY, ON SECTION 303 OF S.333

Summary

This statement has been developed by the Bureau of Alcohol, Tobacco and Firearms, Department of the Treasury, with the scientific advice of the Aerospace Corporation, in order to clarify the status of the Explosives Tagging Program. This statement includes a brief history and status report of the R & D program. Finally, recommendations and suggested wording to be incorporated into S.333 are included.

History

The Explosives Tagging Program has a long history. For over 20 years law enforcement officers who have had to investigate bombing crimes, and security officers who attempt to prevent bombings have sought some support in the apprehension of the criminal and the prevention of the crime. In 1973 the Bureau of Alcohol, Tobacco and Firearms, which had been given the administrative authority over the explosives industry in Title XI of the Organized Crime Control Act of 1970, took the lead among interested Federal agencies. In 1974 an Advisory Committee on Explosives Tagging was chartered to advise the Director of the Bureau of Alcohol, Tobacco and Firearms in the use of science to suppress criminal bombings. Since that time, the Institute of Makers of Explosives (IME) and the Sporting Arms and Ammunition Manufacturers' Institute (SAAMI) were asked to become members of this committee which they did. Attachment A gives the current membership. This membership is an amalgamation of those attempting to suppress bombing crimes and those representing the industries victimized by the crime. Since 1973, the IME and SAAMI have given a great deal of support to the program in technology and in the safety tests. Without their help, this program could not be as far along in the research as it is.

Identification Tagging

To date, we know that we have developed a taggant for identification which survives the blast of commercially produced explosives and can be recovered at the scene of the crime under extremely adverse circumstances to give us information which permits us to trace the explosive. This trace is valuable to the law enforcement

investigator because it gives him a point at which to start an investigation. In the La Guardia Airport bombing, the type of bomb has not been determined and no such point to start the investigation has yet emerged.

The existence of the identification taggant would do several other things which have been of benefit to society. First, if the same taggant occurred in two places, this would indicate a conspiracy or at least a nexus of two criminal acts. This is an additional help to the criminal investigator. It would also tell us the type of explosive and from where it came. This is very helpful in identifying the frequency of use of the various kinds of explosives and gives us information on the techniques used by criminals. In addition, it would help us determine a very difficult element in litigation, and that is whether an explosion was accidental or deliberate. Thousands of dollars are spent over this one point by insurance companies and claimants. Consequently, there are benefits beyond those which are normally associated only with the apprehension of the criminal bomber.

We do not intend to tag all explosives. We intend to tag only those that are significantly used in crime. The ANFO type of explosive is used commercially in great quantities in the United States; but we would not tag that type because it almost never appears in crimes and because it almost always requires some sort of a booster or detonator to set it off. We will be tagging these boosters and detonators. The last reported use of ANFO in the United States in a criminal bombing was the bombing of the mathematics center of the University of Wisconsin. In that instance, dynamite was used as the detonator, and if the dynamite had been tagged, investigators would have had an almost immediate reference to the criminal.

Detection Tagging

Research on detection tagging took longer than that for identification tagging. We now have isolated several vapors which can meet our strict requirements, which include having at least a 5-year life, not existing in nature, having no effect on health or the atmosphere, and being reasonable in cost. We also have now

developed a method of packing in small spherical micro-capsules. Three companies have made acceptable micro-encapsulated detection taggants.

Aerospace is now negotiating contracts with the manufacturers to perform the compatibility and safety tests as were done for identification taggants. Since detection taggants are much smaller than the identification taggants, we foresee no problems of compatibility or safety. Since no records are required for detection taggants, we foresee much less opposition from those concerned with recordkeeping.

Opposition and Support

We recognize that no industry wants increased government interference in its business, and we have attempted to make this interference the least possible. The National Rifle Association representatives and representatives of the National Muzzle Loading Rifle Association are concerned with additional government interference with their sporting use of the powders. These are legitimate concerns; however, we are convinced that the taggants can be incorporated into explosives safely, at a very minimal cost without affecting performance and without burdensome recordkeeping.

On the other hand, support for the tagging program comes not only from the Federal agencies responsible for protection against explosive crimes, but also from those groups victimized by bombing crimes. These include, among others, the International Association of Chiefs of Police, the Air Line Pilots Association, the Air Transport Association, and the Fire Marshals Association of North America.

Objections to Explosives Tagging

The objections to the program basically are: (1) safety; (2) cost; and (3) value to law enforcement.

Safety

Attachment B is a summary of the safety testing of identification taggants done by the major companies comprising the IME and compiled by the Aerospace

Corporation. The participating companies have produced about seven million pounds of tagged explosives and distributed them for sale in normal commercial channels. This was a national pilot test designed by the Aerospace Corporation under contract to ATF. No undue hazard has been identified in the original laboratory testing or in this production.

The "permissible" explosives are those used in mines and are subjected to special safety tests by the Bureau of Mines Research and Development Center in Bruceton, Pennsylvania. The three makers of permissible explosives are Hercules, DuPont, and Atlas. As of March 20, 1979, the permissible explosives with identification taggants of all three manufacturers had passed the incendivity tests. The tagged permissibles of DuPont and Hercules have also passed the balance of the permissibility testing for chemical analysis and homogeneity. Their tagged permissibles have, therefore, passed all tests and they have been so notified. Atlas is still in test for chemical analysis and homogeneity. There is every reason to believe the Atlas permissibles will also pass. This is one more indicator of safety of tagged explosives.

Cost

Concern has been expressed over the price the 3M Company might charge for the taggants. Mr. L. J. Hessburg of the 3M Company in his testimony before the Subcommittee on Criminal Laws and Procedures of the Senate Committee on the Judiciary on April 17, 1978, stated that 3M calculates its cost for explosives taggants will be between $25 and $40 per pound. The $40 figure was used to calculate the cost of the program. While it may be true that for other purposes, such as tagging textiles or livestock feed, the 3M Company is asking higher prices, those prices do not apply to the Explosives Tagging Program. Attachment C is a copy of the letter dated March 14, 1979, from 3M to Representative Glenn M. Anderson, Chairman of the House Subcommittee on Aviation, re-affirming this price.

The 3M Company at this stage is the only supplier. This does not mean that other manufacturers could not compete. Furthermore, 3M was the survivor of three contenders: the Ames National Laboratory, the Westinghouse Corporation, and the 3M Company. It has survived a stiff competition. Whether or not it can maintain its favorable position is something the market will determine. G. E. is also working on an identification taggant.

To ascertain the legal position, the Department of Justice was queried on similar situations. The Clean Air Amendments of 1970 addressed such a situation when it appeared possible that only one manufacturer could produce pollution control devices. This amendment authorized the departmental Secretary to request the assistance of the Attorney General who would seek a court order to require the manufacturer of the unique device to license it to other manufacturers under reasonable terms. If this is felt to be a problem, similar language could be developed for this bill.

Thus, there are several reasons to believe the costs would be kept reasonable. The 3M Company said so in writing. Competition will probably emerge simply through natural economic forces. G. E. can produce an alternate tagging system. Finally, a legal requirement following the precedent of the environmental protection legislation would add a procedure to ensure reasonable costs and service.

Considerable comment was made on the subject of liability. The explosives industry historically has been an extremely hazardous business. This is the reason that in asking the companies to perform the safety analyses we ask them to specify their own tests in order that they could satisfy themselves that the product was safe. In each case, this has been done. The 3M Company is willing to provide a taggant in accordance with specifications which have been proven to be safe, and it is willing to accept liability for defects in its taggants. That is the proper limit of its liability.

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Considerable effort and study have been made to ensure that the recordkeeping for tracing would not be an undue burden and a high cost. ATF has not asked for any additional recordkeeping authorization. Recordkeeping is now required for all explosives, and black and smokeless powders. Existing recordkeeping requirements are sufficient for us to trace an explosive. We do so occasionally, today, when we are fortunate enough to recover the date/shift code on the outside wrapper of an unexploded explosive, either used or designed to be used in crime. We know it helps. We do not see any significant burden unless the three or four additional digits to record the taggant code are considered a burden over and above the recording of the date/shift code for the explosives or the type of powder required under the legislation concerning firearms under which recordkeeping for smokeless powder is regulated.

The cost to administer the program has been minimal, to date, and would be very small even when fully implemented. Up until March of 1979, only 4 ATF man-years per year were devoted to the program and none of those were full-time personnel. As we get into the administration of the program, we foresee that there will be needed additional personnel in the laboratories because more residue will be sent to the laboratories for analysis, and we will need more tracers. Together these total five. We will need two additional people in Regulatory Enforcement to ensure that the program is administered properly. The Office of Criminal Enforcement, which provides the investigators of crimes, has determined that no additional special agents will be needed for this program because the time of investigations will be cut so much that they will be able to handle the increased number of investigations without additional people.

There has been concern that reworked explosives would impair the program. Under agreements with the IME and its member companies up until the end of 1978, it was determined that they could restrict their rework in mixing to 10% of one mixture to another. This would be a very reasonable rework

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mixture and is practicable as identified by the companies which have been willing to talk to us on this issue. On the other hand, the mixing of taggants might be a great benefit to investigators because it would narrow the pathways of the explosive to the criminal to a much more manageable level. In short, we would have two or more pathways to trace that would eliminate all other pathways identified. So there is an advantage to rework if not overdone.

Value to Law Enforcement

There is concern by sportsmen about the use of taggants in black powder and smokeless powder. It is true that these powders are usually considered low order explosives and therefore cause less physical damage. On the other hand, double-based smokeless powder properly packed in a pipe bomb is as powerful as some dynamites. The major reason to include the black and smokeless powders is that both are effective against people. In 1978 in accordance with reports to ATF of the known explosives, black powder accounted for 20% (4 of the total of 20) of the killed and 14.8% (19 of 128) of the injured. Smokeless powder accounted for 15% (3 of 20) of the killed and 18% (23 of 128) of the injured. The frequency of use of known explosives in 1978 was as follows:

	FBI Reports	ATF Reports
Black Powder	12.1%	13.2%
Smokeless Powder	13.0%	12.1%
Dynamite	10.7%	19.4%

During that period black powder production was less than 1% of all commercially produced cap-sensitive explosives, and smokeless powder represented between only 1% and 2%. The frequency of use, the killed, and the injured are far greater than the proportion of production would suggest. For this reason alone, black and smokeless powders should be included in the tagging program.

On the other hand, if black and smokeless powders are excluded, it will be an open invitation for

the criminal to shift to the powders exclusively. They are cheap, easily acquired, and can be made into bombs very conveniently.

Dr. Julius Roth of the Management Science Associates in his study, "Evaluation of the Needs and Benefits of the Explosives Tagging Program," found support among law enforcement officials for this program. He has forwarded to us a letter identifying 14 sources contacted, of which 10 provided the judgment as to the improvement in the arrest rate (Attachment D). Supporting Dr. Roth's conclusion, however, ATF has made its own study for FY-1978. It was an analysis of the explosives which have a date/shift code on their wrapper and which are normally used within the wrapper. These are the dynamites, water gels, and slurries. In some instances, we are able to recover the wrapper with the date/shift code which enables us to make a trace rather promptly. We wanted to determine if there was a difference in the success rates. Attachment E shows the statistics on these explosives crimes for the year 1978 investigated by ATF special agents. ATF uses as the figure of merit those crimes "forwarded for prosecution." In the explosives with the date/shift code recovered, the "forwarded for prosecution" percentage is almost twice that of the explosives without the date/shift code recovered. Therefore, the Management Science Associates prediction of an increase of from 8% to a 12% arrest rate seems reasonable.

It has been asserted that in at least one state most black powder used in bombs was homemade, so tagging would not help. While none of the crime laboratories break the data down between homemade and commercially made, it is very easy for the laboratory analyst to distinguish homemade black powder from commercially produced black powder. Homemade black powder is rarely used in criminal bombs.

A survey of qualified explosives scientists showed that homemade black powder was identified in less than 5% of the cases in ATF laboratories, in less than 2% of the cases in the FBI laboratory, and in none of the cases in 8 years in the Louisiana State Police explosives laboratory. The FBI's National Bomb Data Center does not separate, but it reports very little homemade black powder is reported.

There has been some concern that since the identification taggants are magnetic they could be removed from the explosive by an enterprising criminal. With most explosives, extracting the magnetic taggants would require very sophisticated scientific separation techniques. If attempted, there is a good chance of destroying the explosive or the criminal or both.

Black and smokeless powders, being dry and granular, are another matter. Magnetic taggants could be removed by a magnet. To offset that convenience, we plan to use half magnetic taggant and half without the magnetic layer.

In addition, we have research being pursued to develop a material that is not magnetic until subjected to the heat and shock of an explosion. Then it becomes magnetic. One family of chemical compounds exhibiting this characteristic is the ferrocenes. The research to find the optimum such compound is being done at the University of Maryland. Once this type of material is developed, the taggants will no longer be extractable by magnets. Meanwhile, the 50-50 approach is suitable.

Detection tagging will take longer to become cost-beneficial; but on the other hand, if it can prevent the blowing up of one major passenger aircraft costing nearly $100 million, its benefit would be paid for. Obviously, we cannot protect all the millions of places that a criminal could place a bomb in the United States with a sensor to

sense the explosives tagged for detection, but if we place it at points where the likelihood is high or the cost of the possible explosion is high, then it will be beneficial. It is also valuable for the protection of highly sensitive installations, both of private corporations and the government. Therefore, while Dr. Roth does not give it as rapid a payout as identification tagging, he does conclude that detection tagging also is cost-beneficial. This analysis by Dr. Roth was done with modern scientific methods of prediction, and as he points out, was very conservative.

Recommendations

Currently, there are several types of explosive materials, such as medicines and propellent-actuated tools, which are now exempt from regulation by reason of specific exemptions in 18 U.S.C., Chapter 40, or the Federal Explosive Regulations, 27 CFR, Part 181.

In addition, there are many explosive materials that are used in other industries and are rarely used in crime. These could be exempt from tagging requirements. Furthermore, there are times in the manufacturing process when tagging is not needed. We would welcome the opportunity to work with the Committee to develop suitable language to provide for such exemptions and temporary suspension of the tagging requirements.

Conclusion

We trust that these comments will clarify some of the impression left by the statements made by witnesses. The program is safe, not unduly costly, and is of value to law enforcement. We welcome any type of examination at any time. Through the Advisory Committee on Explosives Tagging, we keep all of the participants fully informed as to the progress of the research, and the committee in turn provides guidance for the Director of ATF on the next steps to be taken. This has proved a very workable arrangement, and while we cannot agree with the comments made on March 1, 1979, by the president of the Institute of Makers of Explosives, we are certainly appreciative of the support that has been given by the IME members in the past and also by the SAAMI members as well.

[NOTE.—The attachments to the statement of Mr. Dickerson are retained in the committee files.]

STATEMENT OF GLEN R. MURPHY, DIRECTOR, INTERNATIONAL ASSOCIATION OF POLICE -- GAITHERSBURG, MARYLAND

THANK YOU MR. CHAIRMAN, I APPRECIATE THIS OPPORTUNITY TO APPEAR BEFORE THE SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS TO EXPRESS THE BELIEFS OF THE INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE REGARDING THE EXPLOSIVE TAGGANTS PROVISION OF S.333.

THE IACP IS A MEMBERSHIP ORGANIZATION WITH MORE THAN 11,000 MEMBERS IN 63 NATIONS. ALTHOUGH THE MAJORITY OF ITS MEMBERSHIP IS FROM THE UNITED STATES, THE ASSOCIATION BELIEVES THAT THIS LEGISLATION WOULD HAVE A BENEFICIAL EFFECT ON LAW ENFORCEMENT AGENCIES THROUGHOUT THE WORLD, AS WELL AS AID IN THE PROTECTION OF THE WORLD COMMUNITY.

THE IACP SUPPORTS THE TAGGING OF EXPLOSIVES. IF BOMBINGS ARE NOT THE WORST OF CRIMES, THEY ARE INDISPUTABLY ONE OF THE MOST SERIOUS. THE WIDESPREAD DEATH, DESTRUCTION, AND PERSONAL INJURY INFLICTED BY THESE CRIMES ARE OFTEN OF CATASTROPHIC DIMENSIONS. BOMBS ARE A MOST FEARSOME WEAPON IN THE HANDS OF ANYONE. FOR THESE REASONS, EXPLOSIVE AND INCENDIARY DEVICES ARE A TRADEMARK OF THE TERRORIST WHO USES THEIR POTENTIAL FOR INTIMIDATION TO COW THE PUBLIC AND OFFICIALDOM INTO CONSIDERING BRAZEN AND UNREASONABLE DEMANDS.

LAW ENFORCEMENT IS FACED WITH A GROWING USE OF DEVICES DEALING WITH BOMBS, EXPLOSIVES, AND INCENDIARY DEVICES USED FOR THE MOST PART AS A MEANS OF EXTORTION, ACTS OF POLITICAL TERRORISM, OR BY MENTALLY DERANGED PERSONS WHOSE MOTIVES ARE ONLY KNOWN TO THEMSELVES. WE HAVE THREE BASIC CATEGORIES: THE MENTALLY

DERANGED PERSON, THE CRIMINAL WHO USES A BOMB TO ACHIEVE A CRIMINAL PURPOSE, AND THE POLITICAL TERRORIST WHOSE AIM IS SOMEWHAT DIFFERENT. YET ALL THREE POSE THE SAME PUBLIC SAFETY PROBLEM.

AS YOU KNOW, THE EXPLOSIVE MATERIALS TAGGANTS PROVISION AMENDS CHAPTER 40, TITLE 18, OF THE UNITED STATES CODE, TO REQUIRE THE ADDITION OF TAGGANTS TO EXPLOSIVE MATERIALS FOR THE PURPOSE OF IDENTIFICATION AND DETECTION.

AN "IDENTIFICATION TAGGANT" IS DEFINED AS ANY SUBSTANCE WHICH IS ADDED TO AN EXPLOSIVE MATERIAL DURING THE MANUFACTURE OF SUCH MATERIAL AND IS RETRIEVABLE AFTER DETONATION AND PERMITS THE IDENTIFICATION OF THE MANUFACTURER AND THE DATE OF MANUFACTURE OF SUCH MATERIAL.

A "DETECTION TAGGANT" IS DEFINED IN THE PROPOSED BILL AS ANY SUBSTANCE THAT IS ADDED TO AN EXPLOSIVE MATERIAL DURING THE MANUFACTURE OF SUCH MATERIAL AND PERMITS DETECTION OF SUCH MATERIAL PRIOR TO ITS DETONATION.

SECTION 842 OF TITLE 18 U.S. CODE CURRENTLY REGULATES THE IMPORTATION, TRANSPORTATION, SALE, RECEIPT, AND THE MANUFACTURE OF EXPLOSIVES THAT ARE IN, OR AFFECT, INTERSTATE COMMERCE. UNLESS A PERSON IS PROPERLY LICENSED OR POSSESSES A PERMIT TO DEAL IN EXPLOSIVES, THAT INDIVIDUAL MAY NOT BE INVOLVED IN ANY OF THE ABOVE-MENTIONED AREAS WITH REGARD TO EXPLOSIVES.

S. 333 AMENDS SECTION 842 BY ADDING THAT AFTER ENACTMENT OF THE BILL IT WILL BE ILLEGAL FOR ANY PERSON OR PERSONS TO MANUFACTURE ANY EXPLOSIVE MATERIAL WHICH DOES NOT CONTAIN AN IDENTIFICATION TAGGANT. FURTHERMORE, AFTER ENACTMENT IT WILL BE ILLEGAL FOR ANY PERSON OR PERSONS TO MANUFACTURE ANY EXPLOSIVE MATERIAL THAT DOES NOT CONTAIN A DETECTION TAGGANT.

§. 303 OF THE BILL PROVIDES THAT IT IS ILLEGAL FOR ANY PERSON OR PERSONS TO SHIP, DISTRIBUTE, OR RECEIVE, OR CAUSE TO BE TRANSPORTED, SHIPPED, DISTRIBUTED OR RECEIVED, ANY EXPLOSIVE MATERIALS NOT CONTAINING IDENTIFICATION AND DETECTION TAGGANTS IN INTERSTATE OR FOREIGN COMMERCE. IT IS ALSO UNLAWFUL FOR ANY PERSON OR PERSONS TO IMPORT ANY EXPLOSIVE MATERIAL NOT CONTAINING AN IDENTIFICATION AND DETECTION TAGGANT. STAGGERED DATES FOR EFFECTUATION OF THE PROVISIONS ARE PROVIDED FOR BY THE SECTION.

PURSUANT TO THE DEFINITION OF "EXPLOSIVES" CONTAINED IN TITLE 18, IT APPEARS THE BILL WOULD COVER UP TO 80% OF THE EXPLOSIVE DEVICES, AND AS A MINIMUM 60%, IF THE "EXPLOSIVE MATERIALS" DEFINITION INCLUDED BLACK AND SMOKELESS POWDER. IF THE DEFINITION JUST INCLUDED DYNAMITE, MILITARY AND OTHER HIGH EXPLOSIVES, 37% OF THE DEVICES WOULD BE COVERED. IT APPEARS THAT IF THE TERM "EXPLOSIVE MATERIAL" IS DEFINED PROPERLY, THE TAGGING WOULD BE OF GREAT AID TO THE LAW ENFORCEMENT INVESTIGATOR. TAGGING IS INEXPENSIVE, NOT EXPENSIVE.

BOMBINGS PRESENTLY CONSTITUTE THE PRINCIPAL MANIFESTATION OF TRUE TERRORISM IN THE UNITED STATES, AND EVIDENCE SUGGESTS A

LIKELY INCREASE IN THIS FORM OF TERRORISM BECAUSE OF, AMONG OTHER THINGS, ITS SYMBOLIC NATURE. THE INDISCRIMINATE CHARACTER OF MANY TERRORIST BOMBINGS, AND THE PATENT INNOCENCE OF SO MANY OF THE VICTIMS, GENERATES A GREAT DEAL OF PUBLIC SUPPORT FOR STRONG ACTION IN THIS AREA.

PRELIMINARY FIGURES RELEASED BY THE FBI BOMB DATA CENTER WHICH THE IACP ORIGINALLY DEVELOPED AND WAS SUBSEQUENTLY TURNED OVER TO THE FBI IN 1975, SHOW THAT 1,314 BOMBING INCIDENTS OCCURRED IN THE UNITED STATES AND PUERTO RICO IN 1977. AS A RESULT OF THESE INCIDENTS, 22 PERSONS WERE KILLED AND 159 PERSONS WERE INJURED. RESULTING PROPERTY DAMAGE EXCEEDED $8.9 MILLION. FIGURES FOR 1978 SHOW THAT 1,278 BOMBING INCIDENTS, BOTH ACTUAL AND ATTEMPTED, OCCURRED IN THE UNITED STATES AND PUERTO RICO, AND FOR JANUARY AND FEBRUARY OF 1979, 158 BOMBING INCIDENTS OCCURRED IN THE UNITED STATES AND PUERTO RICO.

DURING 1977, 984 OF THE 1,314 INCIDENTS INVOLVED EXPLOSIVE BOMBS AND 330 WERE INCENDIARY. THERE WERE 1,538 DEVICES USED. ONE THOUSAND AND SIXTY-THREE WERE EXPLOSIVE AND 475 INCENDIARY.

THE LEADING TARGETS IN 1977 WERE RESIDENCES, WITH 292 ATTACKS. OF THE ATTACKS, 182 WERE EXPLOSIVE AND 110 INCENDIARY. THERE WERE 281 AGAINST COMMERCIAL OPERATIONS AND OFFICE BUILDINGS, OF WHICH 211 WERE EXPLOSIVE AND 70 INCENDIARY. ONE HUNDRED AND SEVENTY-FOUR ATTACKS WERE MADE AGAINST VEHICLES, 125 EXPLOSIVE AND 49 INCENDIARY. SCHOOL FACILITIES WERE TARGETS IN 100 ATTACKS. EIGHTY-TWO INVOLVED EXPLOSIVE BOMBS AND 18 INCENDIARY. THIRTY-SIX

ATTACKS WERE DIRECTED AT LAW ENFORCEMENT, 18 OF WHICH WERE EXPLOSIVE AND 18 INCENDIARY. THE REMAINING 431 ATTACKS WERE WIDELY DISTRIBUTED AMONG A VARIETY OF OTHER TARGETS. BUREAU OF ALCOHOL, TOBACCO AND FIREARMS DATA FOR APRIL 1975-JULY 1977 SHOWS THAT COMMERCIAL ESTABLISHMENTS, PRIVATE RESIDENCES AND VEHICLES ACCOUNTED FOR 60.7% OF ALL BOMBING INCIDENTS.

IN 1976, 42.5% OF THE PERSON INJURIES SUFFERED FROM BOMBINGS WERE INCURRED BY INNOCENT BYSTANDERS. INTENDED VICTIMS AND SUBJECTS ACCOUNTED FOR 24.5 PERCENT EACH. LAW ENFORCEMENT OFFICERS ACCOUNTED FOR 6.6 PERCENT OF THE PERSONAL INJURIES SUFFERED IN 1976.

THE INCLUSION OF BLACK AND SMOKELESS POWDERS IN THE TAGGING PROVISION OF S.333 IS ESSENTIAL. IN THE PAST THE DYNAMITES, WATER GELS, AND SLURRIES WERE THE HEAVY DANGER TO SOCIETY. IN FACT, IN 1969 THAT CLASS OF EXPLOSIVES CAUSED 69% OF THE DEATHS, 68% OF THE INJURIES, AND CLOSE TO 80% OF THE PROPERTY DAMAGE. IN 1978 THESE FIGURES HAVE DRASTICALLY CHANGED WITH THE SHARP INCREASE IN DEATHS AND INJURIES FROM THE USE OF BLACK AND SMOKELESS POWDERS. IN 1978 OF ALL KNOWN BOMBINGS REPORTED TO ATF, DYNAMITES REPRESENTED 19.4% OF THE BOMBINGS, BLACK POWDER 13.2%, AND SMOKELESS POWDER 12.1%; HOWEVER, THE DAMAGE FOR DYNAMITES HAD DROPPED SIGNIFICANTLY. DYNAMITES ACCOUNTED FOR 35% OF THE KILLED, 20.3% OF THE INJURED, AND 34.3% OF THE PROPERTY DAMAGE. BLACK POWDER, ON THE OTHER HAND, HAS ACCOUNTED FOR 20% OF THE KILLED, 14.8% OF THE INJURED, AND 1.8% OF PROPERTY DAMAGE. SMOKELESS POWDER ACCOUNTED FOR 15% OF THE KILLED, 18% OF THE

INJURED, AND 1.5% OF THE PROPERTY DAMAGE. IN CONJUNCTION WITH THESE FIGURES, WE MUST NOTE THAT BLACK POWDER ACCOUNTS FOR LESS THAN 1% OF ALL CAP SENSITIVE EXPLOSIVES MANUFACTURED IN THE UNITED STATES AND SMOKELESS POWDER ACCOUNTS FOR JUST OVER 1% OF ALL CAP SENSITIVE EXPLOSIVES MANUFACTURED IN THE UNITED STATES.

IT IS WELL KNOWN THAT BLACK AND SMOKELESS POWDERS ARE LOW ORDER EXPLOSIVES; THEREFORE, THEY CAUSE THE LEAST PHYSICAL DAMAGE WHEN THEY GO OFF IN A NORMAL SMALL PIPE BOMB, BUT THEY ARE VERY EFFECTIVE AGAINST PERSONNEL. CONSEQUENTLY, THE GROWTH IN THEIR DAMAGE IN KILLED AND INJURED AND THEIR INCREASED FREQUENCY OF USE ARE VERY SIGNIFICANT. FURTHER, IF THEY WERE EXCEPTED FROM THE TAGGING REQUIREMENTS WE MAY ASSUME THAT THE USE OF BLACK AND SMOKELESS POWDERS IN BOMBING INCIDENTS WOULD INCREASE.

PREMATURE DETONATION OF BOMBING DEVICES EXACTED A HEAVY TOLL ON THOSE PERSONS COMMITTING BOMBING CRIMES. NEARLY ONE OF EVERY FOUR PERSONS KILLED OR INJURED IN BOMB OR INCENDIARY EXPLOSIONS WERE IN THE ACT OF DIRECTING THESE LETHAL AND UNSTABLE WEAPONS AGAINST PROPERTY AND OTHER PERSONS. THERE IS NO DOUBT THAT THESE PREMATURE EXPLOSIONS SPARED THE LIVES OF MANY OTHERS, PARTICULARLY INNOCENT BYSTANDERS WHO HAVE BECOME THE MOST FREQUENT VICTIMS—ALMOST TWO OF EVERY FIVE—KILLED OR INJURED AS A RESULT OF THESE CRIMES DURING THE PERIOD 1972-1976.

AS PREVIOUSLY MENTIONED, TERRORIST GROUPS ACCOUNT FOR A MAJOR PORTION OF THE BOMBINGS WITHIN THE UNITED STATES. THE

PUERTO RICAN TERRORIST ORGANIZATION, FALN (FUERZAS ANNADAS DE LIBERACION PUERTORIQUENA -- THE ARMED FORCES OF NATIONAL LIBERATION FOR PUERTO RICO), IS ACTIVE IN CONTINENTAL UNITED STATES. THIS GROUP SURFACED IN 1974. SOME 58 BOMBS OR INCENDIARY DEVICES HAVE GONE OFF DURING THE PAST FOUR YEARS IN A VARIETY OF PLACES—MACY'S, GIMBELS AND BLOOMINGDALES IN MANHATTAN, THE STANDARD OIL BUILDING IN CHICAGO, THE NEWARK CITY HALL AND POLICE HEADQUARTERS, THE NATION'S CAPITAL, ETC.—WITH THE BOMBERS' NOTES CALLING FOR PUERTO RICAN INDEPENDENCE.

ONE OF THE MOST TRAGIC BOMBINGS BY THE FALN WAS THE 1975 LUNCHTIME BOMBING OF MANHATTAN'S FRAUNCES TAVERN, WHICH LEFT FOUR DEAD. IN AUGUST OF 1977 THE FALN CLAIMED CREDIT FOR THE BOMBING OF TWO BUILDINGS IN MIDTOWN MANHATTAN. THE CHRISTIAN SCIENCE BUILDING AND THE MOBILE OIL OFFICE BUILDING WERE BOTH BOMBED. THE MOBIL OIL INCIDENT LEFT ONE DEAD AND SEVEN INJURED, TWO OF WHOM WERE SERIOUSLY INJURED.

IN 1978 FALN SET OFF BOMBS AT THE KENNEDY, LAGUARDIA, AND NEWARK AIRPORTS AND OUTSIDE THE JUSTICE DEPARTMENT IN WASHINGTON. THE ATF SPENT MORE THAN 1800 MAN-DAYS ON THE LAGUARDIA INVESTIGATION, AND AS OF YET, THE TYPE OF BOMB HAS NOT BEEN DETERMINED. THIS FIGURE DOES NOT TAKE INTO ACCOUNT THE MAN-DAYS THAT THE NEW YORK POLICE DEPARTMENT HAVE EXPENDED ON THE INVESTIGATION.

DYNAMITE USED BY THE FALN HAS BEEN TRACED TO THEFTS FROM CONSTRUCTION SITES IN COLORADO AND NEW MEXICO. THEFT OF EXPLOSIVES APPEARS TO BE THE MAJOR SOURCE OF EXPLOSIVES FOR OTHER CRIMINAL

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ELEMENTS AS WELL. THE IACP RECOGNIZES THAT TO THOROUGHLY INVESTIGATE AN EXPLOSIVES INCIDENT, BE IT A HOAX, THEFT, OR ACTUAL DETONATION, COOPERATION AND ASSISTANCE ARE REQUIRED BETWEEN THE BUREAU OF ALCOHOL, TOBACCO AND FIREARMS, STATE AND LOCAL LAW ENFORCEMENT AGENCIES, AND THE GENERAL PUBLIC.

WITH SUCH COOPERATION SEVERAL CASES HAVE BEEN SOLVED, ALTHOUGH IT ENTAILED PAINSTAKING EFFORTS AND THE EXHAUSTION OF MANY MAN-HOURS:

IN FEBRUARY 1977, TWO BROTHERS WERE CONVICTED AND SENTENCED TO FIVE YEARS EACH IN FEDERAL PRISON FOR HIRING A "CONTRACT BOMBER." THEY SOUGHT TO COLLECT A $100,000 INSURANCE CLAIM AFTER A FIRE AT THEIR NORTHEAST SPRAY PAINT COMPANY INC. IN NORTH EASTON, MASSACHUSETTS. A BOMB SCENE SEARCH BY ATF AND STATE POLICE REVEALED THAT TWO DYNAMITE CHARGES WERE SET WITH AN ALARM CLOCK TIMING DEVICE.

ON JULY 21, 1977, THREE DYNAMITE BOMBS EXPLODED ON A SECTION OF THE ALASKAN PIPELINE NEAR FAIRBANKS, CAUSING MORE THAN $100,000 IN DAMAGE. ALASKA STATE POLICE AND ATF SPECIAL AGENTS ARRESTED THE TWO MEN ALLEGEDLY RESPONSIBLE. ONE IS UNDER STATE PSYCHIATRIC CARE AND THE OTHER WENT TO TRIAL IN EARLY 1978.

ON MAY 10, 1977, 23 STICKS OF DYNAMITE, 254 BLASTING CAPS AND 500 FEET OF SAFETY LINE WERE STOLEN FROM A MINE NEAR FULTON, MISSOURI. WITHIN THE NEXT THREE DAYS, FIVE BOMBINGS TOOK PLACE IN THE SURROUNDING AREA. INVESTIGATIONS BY ATF AND THE FULTON POLICE RESULTED IN THE ARREST OF THREE MEN AND THE RECOVERY OF

THE REMAINING EXPLOSIVES. ALL PLEADED GUILTY TO STATE CHARGES. THE BILL, IF PASSED WITH §. 303 IN PLACE, WOULD AFFORD EASIER DETECTION AND ELIMINATE COSTLY LAW ENFORCEMENT EFFORTS AT ALL LEVELS.

TERRORIST GROUPS ARE UNDERGROUND AND DIFFICULT TO INFILTRATE. WITH THE TAGGING OF EXPLOSIVES FOR DETECTION AND IDENTIFICATION WE WILL BE BETTER ABLE TO TRACE THE MOVEMENTS OF SUCH GROUPS AND DETERMINE THE SIZE, LOCATION, AND CONCENTRATIONS OF SUCH GROUPS. FURTHER, THE TAGGING OF EXPLOSIVES WILL HELP LAW ENFORCEMENT TRACE THE SOURCE OF EXPLOSIVES USED.

JULIUS ROTH OF THE MANAGEMENT SCIENCE ASSOCIATES POLLED SEVERAL LAW ENFORCEMENT OFFICIALS AS TO THEIR VIEW OF THE EFFECTIVENESS OF IDENTIFICATION TAGGING OF EXPLOSIVES. THEIR JUDGMENTS ARE SUMMARIZED AS FOLLOWS:

INVESTIGATOR	POLICE DEPARTMENTS AND BOMB SQUADS	COMMENTS
J. JORDAN	COLORADO BUREAU OF INVESTIGATION	200% INCREASE IN ARRESTS
D. HANSEN	SAN FRANCISCO BOMB SQUAD	0% INCREASE IN ARRESTS
T. BRODIE	DADE COUNTY (FLORIDA) BOMB SQUAD	20% INCREASE IN ARRESTS
J. HELLBOCK	NEW YORK CITY BOMB SQUAD	"SUBSTANTIAL INCREASE IN ARRESTS" (VERY MUCH IN FAVOR OF TAGGING)
W. POE	LOUISIANA STATE POLICE	VERY MUCH IN FAVOR OF TAGGING
D. KAMMER	LOS ANGELES SHERIFF'S OFFICE	"TREMENDOUS POTENTIAL AS AN ASSIST IN INVESTIGATIONS"

Investigator	Police Departments and Bomb Squads	Comments
E. Kovasic	Cleveland Bomb Squad	"May create a lead"
D. Wolfer	Los Angeles Police Department	"May cut down laboratory work, otherwise not too helpful"

Supporting this opinion, ATF conducted its own study in fiscal year 1978. In cases where the date/shift code, which appears on the wrappers of dynamites, water gels, and slurries, was found subsequent to detonation, the arrest rate was almost twice as great as where no date/shift code was not found. This leads us to the conclusion that tagging explosives for identification will most definitely aid law enforcement investigations as to bombing incidents.

The IACP believes that the detection of explosives is a high priority mission in the overall program for the control of the illegal use of explosives. The number and severity of bombing incidents, especially those at various airports and via mailed packages, are ample justification of the need for appropriate means of detecting such bombs. One particularly effective technique is the tagging of explosives or components with a material that can be detected by a trace vapor method. With successful detection tagging methods, governmental units could place detectors at public locations (airports, terminals, post offices, etc.) most likely to be the target of explosive assaults. Likewise, corporations and other private entities could install detectors for

their own protection alleviating bombings, hoaxes, and threats which cost the public and law enforcement agencies many man-hours as well as catastrophic loss of life.

Tagging explosives at the time of manufacture with a taggant material that can survive detonation, be recovered, and provide an investigative lead has been seriously studied for several years. This concept has gained widespread support among many law enforcement groups because of the scant clues that can presently be found among bombing residues.

In 1972, the efforts of private and government investigators in the area of explosives tagging began to gain national visibility through the joint establishment by the Bureau of Alcohol, Tobacco and Firearms and the Federal Aviation Administration (FAA) of an ad hoc committee on explosives seeding. This led to the formation in 1973 of the Advisory Committee on Explosives Tagging chaired by ATF, which acts to coordinate the activities of the various federal agencies concerned with the control of the illegal use of explosives.

The explosives identification and tagging program is intended to clearly demonstrate and document the technical feasibility of adding identification taggants to all commercially manufactured cap-sensitive explosives. The explosive identification tagging concept has three major parts: adding tiny, nonexplodable, coded particles to explosives during their manufacture; recovering and decoding them; and tracing them through distribution records to

THE LAST LEGAL PROCESSOR. DEVELOPMENT OF THIS CONCEPT HAS BEEN PURSUED AS AN EFFORT TO IMPROVE THE ABILITY OF LAW ENFORCEMENT PERSONNEL TO APPREHEND BOMBERS AND TO INCREASE THE ACCOUNTABILITY OF THOSE PRESENTLY RESPONSIBLE FOR THE SECURITY OF EXPLOSIVES BEING STORED OR TRANSPORTED.

THE IACP RECOGNIZES THAT ATF AND MANY PRIVATE GROUPS HAVE BEEN WORKING IN THIS AREA FOR SEVERAL YEARS. WE FURTHER RECOGNIZE THAT TAGGING EXPLOSIVES FOR DETECTION AND IDENTIFICATION REQUIRES COMPLEX SCIENTIFIC RESEARCH AS WELL AS TECHNICAL ADVANCEMENTS IN THE AREA. THEREFORE, THE ASSOCIATION REALIZES THAT PASSAGE OF THIS PROVISION OF THE LEGISLATION WILL NOT END THE DRAWBACKS INVOLVED IN DEVELOPING TAGGANTS OR SOLVE THE PROBLEM OF BOMBING OVERNIGHT. HOWEVER, STRINGENT MEASURES FOR CONTROL AND IDENTIFICATION SHOULD BE ENACTED. LAW ENFORCEMENT HAS THE GRAVE PUBLIC RESPONSIBILITY TO PROTECT SOCIETY FROM THOSE WHO ENGAGE IN THESE ILLEGAL BOMBING ACTIVITIES. THE INVESTIGATIVE AND EVIDENTIARY VALUES OF TAGGING EXPLOSIVES CANNOT BE OVERSTRESSED. THEREFORE THE IACP WHOLEHEARTEDLY URGES THE INCLUSION OF THE EXPLOSIVE TAGGANTS PROVISION IN S. 333.

THANK YOU.

March 27, 1979

Bureau of Alcohol, Tobacco and Firearms

Comments on the NRA Objections to
Tagging of Black and Smokeless Powders

The NRA states the taggants have not been developed for all the products BATF proposes to tag. This is not correct. Technologically, the taggants have been developed--both an identification taggant which has been used in over seven million pounds of manufactured explosives and a detection taggant which at this stage is, of course, still in the laboratory but has been mixed into various explosive materials for laboratory tests. The NRA spokesmen are, of course, noting that the formulation of the taggants is undergoing changes from time to time. We are experimenting with the pellet-shaped taggants, with the rod-shaped taggants, and with oblated spheroids to conform with the shape of the material into which the taggant goes. These are coming along quite nicely. This, however, is only changing the shape of the taggant.

The NRA alleges that ATF has not had any studies on the effect of taggants on smokeless powder or black powder production. This is not accurate either. The safety and compatibility tests by the manufacturers on black powder were completed in late 1978, and the

ballistics tests of the black powder tagged with identification taggants were completed during that fall. In the ballistics testing, it is true that 40 rounds were used, but this was determined by the manufacturer of the black powder to be adequate to his satisfaction for the tests.

In the smokeless powder area, the contracts have been negotiated with the three manufacturers of smokeless powders to test the identification taggants in their normal manufacturing process for safety and compatibility. These contracts run from 4 months to 18 months depending on the desire of the individual company, and one manufacturer will test all his different smokeless powder products. We are aware of the large number of rounds necessary in the ballistics testing because of the many varieties and forms of smokeless powders, and rather than the 100,000 rounds the NRA feels are adequate, our plan worked out with the Sporting Arms and Ammunition Manufacturers' Institute (SAAMI) requires 282,500 rounds for the ballistics tests. We are aware that there is concern among the sportsmen who buy the smokeless powder and black powder about the tagged explosives. For this reason we perform every known

test to determine whether or not there is any hazard connected with the use of the taggants. Thus far, in every test we have run, there has been no hazard, and as far as we know at this time there is no deleterious effect on the ballistics qualities of the powders. We will test to ensure that the firearm itself using tagged powders will not suffer undue fouling or wear. We believe that sportsmen will recognize that we are attempting through the tagging program to reduce crime committed with explosives. We are doing everything we know to ensure that they are not interfered with in their sport shooting, but on the other hand, we would like to feel that they support us in our efforts as well. We do not plan to tag the powders in commercially produced fixed ammunition, for this powder extracted from the cartridge is rarely used in crime. The convenience and ready availability of the powders in canisters lead the criminal to this powder, and this is the powder that should be tagged.

The NRA asserts that the black and smokeless powders cause only a small amount of the total damage from bombing. A few years ago this was correct, but under

the data developed during 1978 the situation has changed radically. In the past the dynamites, water gels, and slurries in 1976 were the heavy danger to society. In fact, that class of explosives caused 69% of the deaths, 68% of the injuries, and close to 80% of the property damage. In 1978 these figures have drastically changed with the sharp increase in deaths and injuries from the use of black and smokeless powders. In 1978 of all known bombings reported to ATF, dynamites represented 19.4% of the bombings, black powder 13.2%, and smokeless powder 12.1%; however, the damage for dynamites had dropped significantly. Dynamites accounted for 35% of the killed, 20.3% of the injured, and 34.3% of the property damage. Black powder, on the other hand, has accounted for 20% of the killed, 14.8% of the injured, and 1.8% of property damage. Smokeless powder accounted for 15% of the killed, 18% of the injured, and 1.5% of the property damage. It is well known that black and smokeless powders are low order explosives; therefore, they cause the least physical damage when they go off in a normal small pipe bomb, but they are very effective against personnel. Consequently, the growth in their damage in killed and injured and their increased frequency of use are very significant.

It should also be borne in mind that for the black powder which is now manufactured at about 1,000,000 pounds annually, it represents less than 1% of the 300,000,000 pounds of cap-sensitive explosives manufactured in the United States, and yet it is used 12.1% of the time in bombing crimes. On the other hand, smokeless powder with an annual production of 5,000,000 pounds accounts for something over 1% of the total of the 300,000,000 pounds of cap-sensitive explosives, and yet accounts for 13% of the frequency of use in bombings. This is very disparate when one considers the limited production of black and smokeless powders. The ease of availability is what perhaps entices the criminal to make use of these materials.

The NRA raises the concern of the extreme amount of recordkeeping that would be incurred in the use of taggant records with black and smokeless powders. The law already requires that recordkeeping be undertaken by handlers of black and smokeless powders. No additional laws are requested for the recordkeeping, and if one considers the minor change that would be required if a taggant record is given rather than the date/shift code or the recorded type of powder, then this amount of the

change and the overall requirements for the records are all that can be conceived. This could not possibly increase the cost of the 1-pound canister as indicated by the NRA.

There will be no recordkeeping requirement for detection tagging. Since this portion of the program is directed at preventing the introduction of explosives into public facilities, such as transportation facilities and government buildings, through addition of a detectable taggant, only verification that the taggant has been properly induced into the explosives will be required.

There have been claims from wholesalers and retailers of black and smokeless powders that other burdens imposed by tagging, including complex inventory requirements and additional storage space for segregating powders according to taggant numbers, would result in much red tape and staggering costs to the industry. No basis exists for such claims. Tagging would not require the establishment of new inventory procedures, and powders could continue to be stored in the existing manner. Once a tagged powder is identified by the manufacturer, a tracing request to the distributor includes a description of the powder as to delivery date, brand name, type, etc. In short, all information required to complete a trace

request from current records and inventories would be available to the distributor.

The NRA raises the concern that some smokeless powders are marginally profitable and that because of the added cost of the program these might be discontinued because of the lack of profitability to the manufacturer. The first comment is made that some of the powders would be priced out of the marketplace by the costs of the tests. The costs of the tests are being paid for by ATF through the Aerospace Corporation which negotiates contracts for tests. We recognize that a considerable amount of testing is necessary, and we are inviting the manufacturers to offer any tests that they can propose which may prove or disprove the safety and compatibility of the taggants. At that time the manufacturers will determine the true costs of the addition of the taggants which to date have not proved significant, and there has been no safety hazard shown in any of the tests thus far. We assume that the same will be true in the smokeless powders as it has been proved true already in the black powders and the higher power explosives.

50-412 O - 80 - 27

The NRA is concerned about products being kept off the market for several years. We do not foresee such a possibility. If it were because the taggants were not available, the current bills in Congress all have the opportunity for the Secretary of the Treasury to suspend the requirements for tagging until the taggants are available. We know of no reason why any of the products, including powders, should be kept off the market unless, of course, the manufacturers decline to comply with the taggant requirements.

The NRA states that the Congress is being asked to impose a program by law when the effects upon crime control are purely guesswork, and the effects upon consumers and products they use are unknown. The effects upon crime control are not purely guesswork. Statistics show the difference between the success rate in apprehending criminals in the few cases in which we are able to get a date/shift code and those cases in which we are not able to get the date/shift code. The figure of merit we use is "forwarded for prosecution." In the case of the successful acquisition of the date/shift code in the investigation, the figure for "forwarded

for prosecution" is nearly twice as much as that when we are unable to get the date/shift code. The taggant code has essentially the same information as the date/shift code would have. All explosives that are commercially manufactured would have the taggant code; therefore, there is every reason to believe that the crime control would be improved. Further, a contract was negotiated between ATF and the Management Science Associates (MSA) for an analysis of the value to crime control. In its study, "The Evaluation of the Needs and Benefits of the Explosives Tagging Program," submitted in March 1978, MSA pointed out that there would be a definite improvement in the arrest rate, there would be an improvement in deterrence, and there would be secondary effects such as the reduction in theft because the owners of explosives would improve their security in order not to be caught in the situation where their explosives had been stolen and used in a crime without their knowledge. Furthermore, the use of a taggant would assist in the litigation of claimants against insurance companies concerning explosions in which it is impossible or very difficult to determine whether they had been accidental explosions or deliberately set explosions. There are many advantages to the tagging program, and we have done every known type of scientific

analysis to conduct the analyses scientifically rather than by guesswork. The effects on the consumer would probably be minimal. The consumer would probably not know that he is using a tagged explosive. As our tests are completed, the products themselves are being proved to be perfectly safe with taggants, and they therefore cannot be considered in any sense inferior to or distinguishable from current products.

United States Department of Justice
ASSISTANT ATTORNEY GENERAL
CRIMINAL DIVISION
WASHINGTON, D.C. 20530

JUL 23 1979

Honorable Abraham A. Ribicoff
Honorable Jacob K. Javits
United States Senate
Washington, D.C.

Dear Senators Ribicoff and Javits:

This is in response to your letter of June 21, 1979, to the Attorney General requesting clarification of a position taken by the Federal Bureau of Investigation on the effectiveness of explosive taggants. In a letter dated May 14, 1979, to the House Committee on Public Works and Transportation, FBI Director Webster expressed the view that the tagging program will not be a significant deterrent to terrorist bombers because they might construct bombs from materials other than those to which taggants have been added. In a subsequent letter on the same subject, Director Webster stated that "this Bureau regards the concept of the tagging program to be beneficial to law enforcement in the identification and tracing of explosive devices when technology permits." He has also expressed support of the tagging program in a letter to you dated June 29, 1979.

So that there will be no misunderstanding on the position of the Department of Justice on the subject of explosive taggants, this Department regards them as an effective and important law enforcement tool. We strongly support section nine of H.R. 2441 and feel that the discretion given to the Secretary of the Treasury under the bill's proposed 18 U.S.C. 842(l)(9) to extend the time period in which taggants must be included in particular explosives provides for sufficient flexibility in this area. 18 U.S.C. 842(l)(9) would allow the Secretary to extend the time period in which a taggant must be added to explosives if the taggant is unavailable in sufficient quantities for commercial purposes, will impair the quality of the explosives, is unsafe, or would harm the environment. This discretion given to the Secretary will, we feel, overcome any problem of contamination or quality control that might presently exist with respect to the state-of-the art of tagging particular explosives.

Our support of taggants is consistent with our position on the provisions of H.R. 1834 and H.R. 2441 dealing with taggants as set forth by Deputy Assistant Attorney General Mary C. Lawton in her testimony on these bills on March 1, 1979, before the Subcommittee on Aviation of the House Committee on Public Works and Transportation. The Department has also supported legislation providing for the use of explosive taggants in the past Congress.

We would also reicerate our position on the exclusion of black and smokeless powder from those explosives that will have to contain taggants. We hope that, when the Senate considers taggant legislation, taggants will be required for these materials as well as for other types of explosives. The authority given the Treasury Department to determine if a taggant for a particular type of explosive is unsafe, would impair its quality or is not available in sufficient quantities for commercial purposes should provide enough safeguards against the premature inclusion of taggants in black or smokeless powder.

Sincerely,

PHILIP B. HEYMANN
Assistant Attorney General
Criminal Division

S A A M I

SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE, INC.

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March 28, 1979

Honorable Abraham A. Ribicoff
337 Russell Senate Office Building
Washington, D. C. 20510

Dear Senator Ribicoff:

We understand that the Senate Governmental Affairs Committee will begin hearings on S. 333, entitled "Omnibus Antiterrorism Act of 1979," on Friday, March 30, 1979. Section 303 of that bill, as introduced, would require the addition of identification and detection taggants to explosive materials, including smokeless propellant powders.

The Sporting Arms and Ammunition Manufacturer's Institute (SAAMI) is a non-profit trade association composed of 11 producers of sporting firearms and ammunition and smokeless propellant powders. Included among SAAMI's members are the sole United States producers of smokeless powders. The mandated addition of taggants to these powders, with the attendant recordkeeping requirements, would have a major adverse impact upon producers and consumers of smokeless powders.

The present concept of identification taggants is color coded particles. They are intended to survive a detonation of explosives and, when recovered, to provide identification of the manufacturer of the explosives through the particular color code. Theoretically, by imposing an extensive recordkeeping system, a Federal investigative agency could compile a list of last legal purchasers of the production lot or lots of explosives from which the bomb was constructed. Detection taggants are particles which are intended to emit some type of vapor which may be detected by specialized equipment scanning for bombs. The technology for detection taggants is only in the very early stages of research and development.

March 28, 1979

SAAMI's first concern over the addition of taggants to smokeless powder is the danger the presence of this contaminant in powder may present to SAAMI employees and to consumers using powder to handload ammunition. Requiring tagging of smokeless powder also would impose substantial technological problems, recordkeeping burdens and costs upon the entire industry and sportsmen.

A production lot of tagged smokeless powder typically will be distributed to 10,000 to 20,000 sportsmen spread throughout the United States. Consequently, the identification of a taggant in smokeless powder which has been criminally misused would provide a list of 10,000 to 20,000 names of purchasers of powder containing the particular taggant. It is difficult to conceive what benefit such a list will provide law enforcement agencies investigating the criminal misuse of smokeless powder, particularly since terrorists normally use stolen explosives.

Although SAAMI members do not produce commercial explosives, we firmly believe that the most appropriate action for the Committee would be to strike Section 303 in its entirety. The testimony which has been presented to the appropriate House committee and which will be presented to the Government Affairs Committee demonstrates that the tagging program is ill-conceived and will not appreciably increase the effectiveness of law enforcement personnel in halting criminal bombings. The Federal Aviation Administration has testified that adding taggants to explosives will not aid in preventing terrorist hijackings or bombings of aircraft. Furthermore, Assistant FBI Director Donald W. Moore testified on March 8, 1979 (before the House Judiciary Subcommittee on Civil and Constitutional Rights) that the measures already taken have reduced significantly the terrorist bombing problem. He stated that there has been a 48 percent reduction in terrorist bombings, from 100 in both 1976 and 1977 to 52 in 1978. As a result, the FBI has proposed a budget which would cut $1.6 million and 70 positions from the FBI's anti-terrorism program.

We thank you for your consideration of this matter.

Very truly yours,

Harry L. Hampton

Harry L. Hampton

OFFICE OF THE DIRECTOR

DEPARTMENT OF THE TREASURY
BUREAU OF ALCOHOL, TOBACCO AND FIREARMS
WASHINGTON, D.C. 20226

APR 3 1979

Dear Mr. Chairman:

It has come to our attention that there are allegations that magnetic taggants can be removed from dynamites, water gels, and slurries. Our information does not indicate this, and forwarded herewith is a letter from the Aerospace Corporation noting the various efforts to remove the magnetic taggants and the results. In every case, sufficient taggants remained to survive the explosion and be retrievable for tracing purposes.

Should there be individuals who make this contention, we would respectfully request that they provide us the residue of the explosive with a sample of the taggants extracted and the date/shift code. Under any condition that they may wish to apply, we would like to determine if any taggants remain.

Furthermore, with determined efforts far beyond that which a criminal might use, sufficient taggants always remained for a trace. While perhaps not impossible, it is extremely improbable that all taggants could be removed. We have expended considerable effort on this problem. In black and smokeless powders, we know the magnetic taggants can be removed; therefore, we plan to use half magnetic taggants and half non-magnetic. In addition, we have research being pursued for materials which are non-magnetic until subjected to the temperature and shock of an explosion. This would prevent removal by magnets. Should there be other techniques for removal, we should like to know about them in order to develop counter-measures.

We request that the Aerospace letter be made a part of the official record of the report on the explosives taggants section of your anti-terrorism bill.

Sincerely yours,

G. R. Dickerson
Director

The Honorable
Abraham A. Ribicoff, Chairman
Committee on Governmental Affairs
United States Senate
Washington, DC 20510

Enclosure

THE AEROSPACE CORPORATION

Suite 4000, 955 L'Enfant Plaza, S.W., Washington, D.C. 20024, Telephone: (202) 488-6000

2930-REM-79-084
29 March 1979

Mr. A. Atley Peterson
U.S. Department of Treasury
Bureau of Alcohol, Tobacco
and Firearms
1200 Pennsylvania Avenue N.W.
Room 5205
Washington, D.C. 20226

Dear Mr. Peterson:

The question of the ease of removal of ID taggants from high explosives (dynamites and gelled slurries in particular) has been raised on several occasions, most recently by Mr. David M. Gleason of the Austin Powder Company. Mr. Gleason asserts that ID taggants can be removed easily and completely from most commercial explosives, including ANFO and the non-gelatinous explosives.

We agree that partial removal of ID taggants from ANFO would be relatively easily but we doubt that complete removal would be easy, if at all possible. This is a moot point considering that tagging of ANFO has not been considered.

The catagories of explosives being considered are the dynamites, the gelled slurries and the emulsions. According to data supplied by the industry, the latter two types comprise 30% to 50% of the total. Mr. Gleason seems to accede to the point that ID taggants cannot be removed from these materials. We agree. In numerous experiments involving removal of ID taggants from duPont Tovex, Atlas Emulsion, and Hercules slurries, extreme difficulty has been encountered in taggant recovery. In all cases destruction of the explosive was required to achieve complete taggant removal.

Mr. Gleason's charge relative to taggant removal from dynamites appears to be unsupportable by factual information. Although on several occasions, we have carried out experiments to removed ID taggants from explosives we did not document the difficulties or time involved because such removal has always been a minor part of a larger study.

In order to document the time and difficulty involved, we requested that Dr. Ronald Rollins of the University of Missouri carry out a study on the separation of ID taggants from dynamites. Dr. Rollins operates the testing facility at the University of Missouri and has carried out literally hundreds of test shots, and tagged explosives studies as part of the tagging program.

Dr. Rollins and his assistants made an exhaustive effort to remove taggants from two types of dynamite, one a powdery permissible, and the other an ordinary 60% extra ammonium nitrate dynamite. One detagged stick of each was detonated in a closed chamber by Dr. Rollins and the residue recovered. Aerospace personnel then examined the residue for taggants and also made a further study of the explosive from which taggants had been removed. In spite of the many hours of effort expended in removing taggants from a single stick of dynamite, sufficient number of taggants remained to insure survival and recovery of an adequate number for tracing.

It is notable that Dr. Rollins indicates that even with the very high strength magnets available to him (samarium-cobalt super magnets used in the taggant recovery kits), taggant recovery from the powdery permissible was incomplete and was negligible from the 60% extra. To approach complete removal, required many hours of tedious labor involving turning and stirring tiny portions of the dynamite under UV illumination and picking out individually each of the more than two thousand taggant particles in a single 0.5 pound cartridge of dynamites.

The attached reports document the results obtained in this study. They consist of a letter from Dr. Rollins and a short description of the work of Dr. David Edwards of The Aerospace Corporation. You will note that after some twelve hours of intense effort, even in the most favorable case, 13% of the taggants were still available, a number quite sufficient for adequate survival and recovery leading to a successful trace.

I believe this should settle once and for all the question of taggant removal from explosives.

Very truly yours,

Robert B Moler

Robert B. Moler
Director, Explosives and Materials
Control Directorate
Eastern Technical Division

RBM:md

The Fertilizer Institute
1015 18th Street, N.W.
Washington, D.C. 20036
(202) 466-2700 • Telex 89-2699
EDWIN M. WHEELER
President

April 6, 1979

The Honorable Abraham Ribicoff
337 Russell Senate Office Bldg.
Washington, D. C. 20510

Re: S. 333

Dear Senator Ribicoff:

It has come to my attention that S. 333 will soon come before your Governmental Affairs Committee for markup.

We understand that there is a possibility that S. 333 could be interpreted to require every U.S. ammonium nitrate producer to tag (taggant) or identify this product so that if the product were used illegally as an explosive it could be traced back to the manufacturer. Our current output of ammonium nitrate is running at about 7.2 million tons per year. In addition, we imported 427,000 tons last year alone. As reported by the U.S. Department of Commerce, 1,447,000 tons (20% of output) were used for explosives and other industrial uses in 1978. Location of these production plants is scattered throughout the United States.

-2-

Industry estimates that the taggant would cost not less than $30.00 per ton, or that the nation's farmers would pay not less than $136,000,000 per year for a service of absolutely no direct value to them or their crops. If ammonium nitrate liquor were to be covered, an additional $172,440,000 cost would be incurred. We are talking here in the final analysis of higher costs to our farmers who, as you are well aware, are saddled with soaring costs. Farmers are virtually defenseless in trying to absorb these ever higher agricultural input prices, let alone pass them through to those who purchase their product. And, with inflation raging out of control, this is one more unnecessary way to drive up the cost of food. Fertilizer price increases have an immediate and adverse impact on food costs because 30-40% of the nation's food production is a direct result of fertilizer application. And, the ultimate bearer of cost increases such as this one is the consumer.

Ammonium nitrate is not ordinarily considered to be an explosive. It will not explode unless (1) a carbonous material is purposefully added and (2) a detonating cap is used to "activate" it.

Another factor to be considered is that ammonium nitrate use is extremely hard to trace. This product ordinarily moves through many plants, warehouses and is traded often, etc. Even if a taggant would show who the producer of the material was it would be virtually impossible to determine where a criminal came into possession of the material. The system of marking contemplated in S. 333, insofar as ammonium nitrate is concerned, will simply not do what is sought, stay the illegal use of explosives. We, therefore, request that S. 333 be amended to clearly show that agricultural ammonium nitrate is not subject to the purview of the measure and that the accompanying report allude to the Committee's direction and intent to so exempt same.

We respectfully request that this letter be made a part of the record on bill S. 333.

Respectfully submitted,

Edwin M. Wheeler

EMW:pc

THE AEROSPACE CORPORATION

Suite 4040, 955 L'Enfant Plaza, S.W., Washington, D.C. 20024, Telephone: (202) 484-5500

2930-RBM-79-112
17 May 1979

Senator Abraham Ribicoff
United States Senate
Committee on Governmental
Affairs
Washington, D.C. 20510

Dear Senator Ribicoff:

During the hearings on the Omnibus Antiterrorism Bill (S-333), several points were raised either in testimony or by question.

In my written statement I included a report on the safety of ID taggants with explosives prepared by the Allegheny Ballistics Laboratory of the Hercules Corporation. I inadvertently provided a draft version rather than the final version of the report. I am including for the record the correct Final Report. The only significant difference between the draft and final version is in the Conclusions and Recommendations. The final version does not imply (incorrectly) that ID taggants sensitize explosives, only that there is a slight difference between encapsulated and unencapsulated taggants.

Your question regarding the participation of the industry is particularly pertinent. I am enclosing for the record letters that I have sent to the industry requesting their participation in the testing programs. We have received no response to these letters. We are, of course, vitally concerned that the test program be one in which industry participates. It is only in this manner that we can be confident that the test programs are meaningful and provide reasonable assurance that the proposed method or materials does not significantly increase the risk involving a process or product.

An interesting case in point is the testing of ID taggants in black powder. You received a letter from GOEX that indicated some concerns about tagging black powder. That letter, is inconsistent with our prior correspondence with GOEX and appears to ignore the fact of the substantial testing that has taken place. Mr. Neal Knox of the National Rifle Association, testified along similar lines and he also appears to be unaware of the facts. I would like to take this opportunity to examine the validity of these concerns and to document GOEX's participation in the evaluation of black powder tagging.

Request for Quotation, No. 1043, "Process and Product Taggant Compatibility Demonstration Test for Black Powder" (copy enclosed) was sent by Aerospace on April 24, 1978, to GOEX at Moosic, Attention Mr. Fahringer. The Statement of Work which is included with that request for quotation requires from GOEX, among other matters:

1. Measurement of the compatibility of the tags by laboratory tests selected to assure the contractor that introduction of the tags into the manufacturing process will not create a hazard, if the data from the Bureau of Mines' prior compatibility tests of tags with black powder are not considered by the contractor to be adequate.

2. Manufacture of sequential batches of superfine black rifle powder, adding tags to the first batch, specifying that manufacture is to be by regular procedures and there is not to be any unusual cleanout of equipment.

3. Arranging for the performance in a double blind experiment of sufficient proof firings of the tagged batch and an untagged control to determine the effect, if any, of taggant addition on ballistic variation in cartridges and on fouling and wear in guns.

4. Participation with Aerospace in transportation-vibration tests to determine if segregation of taggant occurs.

5. A new cost analysis for tagging black powder if GOEX regarded their earlier cost analysis to be obsolete.

On May 10, 1978, a letter was sent from GOEX to Aerospace (copy enclosed) which states:

1. The data supplied by the Bureau of Mines recent compatibility tests of taggants and black powder is adequate and considered acceptable by GOEX.

2. GOEX has secured the services of a well known ballistic expert to perform all the necessary tests to determine what effect, if any, the taggants have on ballistic variation, fouling, and wear of the guns.

3. GOEX agrees to perform the necessary vibration tests and to cooperate with Aerospace in determining taggant segregation.

4. GOEX agrees that, if new data warrants recalculation of cost analysis, it will be performed.

5. All standard operating and manufacturing procedures will be identical to their regular production methods except that, in the tagged batch, the required amount of taggants would also be added at the time the graphite is introduced into the charge.

On May 24, 1978, a purchase order (copy enclosed) for this work was sent to GOEX. The work required by the purchase order was carried out. In addition, in order to determine whether the addition of taggants introduced any increased electrostatic hazard into black powder, a separate contract was let by Aerospace to Hazards Research Corporation of Denville, N.J., to determine the rate of electrostatic charge dissipation of tagged and untagged black powder.

When much of the work on feasibility of identification tagging of black powder was complete, a progress report dated December 1978 was prepared by Aerospace for BATF. Draft copies of this report (copy enclosed) were submitted to BATF for review and also to Mr. Fahringer at GOEX for review. A copy of the letter forwarding the report to Mr. Fahringer and asking if he would identify any errors in the report is enclosed. Also, enclosed is Mr. Fahringer's letter, January 12, 1979, to Aerospace which states, "I have reviewed the draft of the progress report on feasibility of identification tagging of black powder and found it to be in order."

In March 1979, an updated progress report on the feasibility of identification tagging of black powder was issued by Aerospace. The report contained additional data, but the conclusions were unchanged from those of the draft of December 1978. On March 5, 1979, GOEX sent a letter to Aerospace stating that they considered the work done on the Aerospace Purchase Order to be complete. In support of this, GOEX pointed out that the Bureau of Mines compatibility test data had been accepted, that the recalculation of cost data was not warranted, and that the ballistic data obtained by their subcontractor was sufficient for the ballistics expert to conclude that "to the extent that these tests and observations allowed, a user and shooter would not be likely to discern any differences between the samples submitted and tested." The GOEX letter also stated that, although the number of shots fired to acquire the necessary ballistic data appeared low (a total of 40 shots), the expert had been given "carte blanche" on the test program.

On page 2 of his prepared Statement, Mr. Knox states that "grains of black powder of a given trade are screened to obtain nearly uniform size." This is not true. The black powder is screened into size ranges. For FFFg black powder (the most popular granulation for muzzle loaders), the range of grain sizes is from 0.0117 inc. to 0.0331 in., the exact same size range of the identification taggants that were incorporated into it.

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-4-

Mr. Knox's statement in his oral testimony that no tests of taggant segregation have been conducted is obviously false, as can be seen from Section VI of the progress report.

The enclosed progress report and the most recent one included in my written statement of 7 May 1979 show that every aspect of the feasibility of identification tagging of black powder has been investigation and that no evidence of any adverse effect due to the introduction of the taggants had been found.

We are in agreement with GOEX that the number of firing appears low and we would be willing to sponsor additional tests by another expert with qualifications the equal of Mr. Yards', a former technical editor of The Handloader Magazine, with technical publications in this area see, The Gun Digest, 27th Edition, 1973). Any such testing should be carefully designed and should be carried out as a "double blind" experiment, that is, neither the tester nor the compiler and analyzer of the data has knowledge of which samples contain tags and which do not.

We appreciate the opportunity of being of assistance to the committee. Please feel free to call on us whenever we can be of assistance.

Very truly yours,

Robert B Moler

Robert B. Moler
Director, Explosives and Materials
Control Directorate
Eastern Technical Division

RBM:md

[NOTE.—The enclosures to Dr. Moler's letter are retained in the committee files.]

"A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed."

SECOND AMENDMENT TO THE CONSTITUTION

National Muzzle Loading Rifle Association

P. O. BOX 67 FRIENDSHIP, INDIANA 47021

June 4, 1979

GOVERNMENTAL AFFAIRS COMM.
RECEIVED
JUN 8 1979
WASHINGTON, D.C. 20510

The Honorable Abraham Ribicoff
United States Senate
Committee on Governmental Affairs
Washington, D.C. 20510

Dear Chairman Ribicoff:

Thank you for your reply concerning my request to provide testimony in regard to the explosive tagging section of S.B. 333. Since I received your reply on the day of the hearing, it would have been impossible for me to testify in person anyway. I do appreciate the opportunity to provide written testimony regarding S.B. 333 and its taggant section. Please accept this letter for consideration by you and your fellow members of the Senate Committee on Governmental Affairs.

First of all, I'd like to commend both you and Senator Javits for your efforts to quell terrorist action in the United States. It is a worthwhile goal, and it does merit the attention of the Congress.

Secondly, I would like to recommend that the entire explosive taggant section of S.B. 333 be dropped, to allow the rest of the Bill to progress toward enactment. I believe I am correct in saying that the Bureau of Alcohol, Tobbacco, and Firearms is once again trying to develop a program that is hardly past the guessing stage. Faulty, inept, and ill prepared testimony on the part of B.A.T.F. is certainly an affront to you and your colleagues. After two years of "testing" and "study", the B.A.T.F. people cannot even produce a taggant that cannot be removed from explosives. It seems obvious that the B.A.T.F.'s zealous lobbying is backed by very few technical sureties and even fewer elements of common sense.

The tagging program proposed would be extremely costly, and from all aspects considered, very ineffective. Tagging the many

different kinds and lots of explosives produced and distributed in our Country would be almost an impossible task. If one could tag explosives with a substance that couldn't be removed, and if the Agents could use the taggants found from a bombing, where would that place their investigation? Perhaps they could connect the explosive used to a thousand or ten thousand people. It seems unlikely that a group of that size would be useful to an investigation. How many agents would be needed to investigate several thousand possible culprits? I realize that B.A.T.F often comes to the "Hill" with proposals that require much additional funding, many new agents, and increased power for them; however in this case I think the program offered is beyond the limits of good common sense and reason.

A taggant program, if technically possible, would heap huge additional costs on the explosive and ammunition manufacturers, who, in turn would have to increase the price of their product by a similar huge amount. Of course an inflated price may not then be accepted by the final consumer, in which case dealers, and the producers, would have to drop out of the market. I doubt seriously that you gentlemen wish to wreck manufacturers and dealers, add more inflation to our economy, and create havoc in consumer markets. This result would be the price of enacting an extremely ineffective program that would not even touch such commonly used explosive materials as ammonium nitrate fertilizer and fuel oil, or gasoline which, the National Safety Council has recently warned, nationwide, is so explosive that one gallon is equal to the explosive force of 14 sticks of dynamite.

In addition to being costly, ineffective, and built on guesswork, the B.A.T.F. taggant program could very likely create a safety hazard for producers and consumers. No conclusive tests thus far have proven that an effective taggant will not create additional hazards in the production process or in final usage.

I have been informed, since the taggant hearing, that more research has been ordered by your Committee, to be done by a research arm of Congress. I think that such action was wise, although I doubt if it will add any evidence that the taggant program would not be very costly, and almost useless.

If good sense and reason does not prevail as to dropping the taggant program completely, I hope you gentlemen will consider exempting black and smokeless powder from the taggant provisions. Commercially manufactured black and smokeless powder is seldom used in bombings. They are already morediffiault to find and purchase than other more common explosives, and they are quite

necessary to the respective shooting sports they serve. In the case of commercially manufactured black powder , it is the only propellant which can be used in firing antique, muzzleloading firearms. Many, many thousands of black powder shooters across the U.S. would be most appreciative of your consideration in regard to their interests.

In closing I'd like to thank you again for your consideration, and to again suggest that the public interest would best be served by enacting S.B. 333 without the taggant section.

Sincerely,

Al Cors Jr.

Al Cors Jr.

Legislative Coordinator
National Muzzle Loading Rifle Assoc.

Home address: 227 East High St.
Lawrenceburg, Ind.
47025

S A A M I

SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE, INC.

July 10, 1979

HARRY L. HAMPTON, JR.
Executive Director
420 Lexington Avenue
New York, NY 10017
Phone: (212) 986-6920

WALTER M. BELLEMORE
Technical Advisor

CHARLES F. TURNER
Associate Technical Advisor
One Evergreen Avenue
Hamden, CT 06518
Phone: (203) 248-9381

The Honorable Abraham Ribicoff
United States Senate
Chairman, Committee on Governmental
Affairs
Washington, D.C. 20510

Dear Senator Ribicoff:

It recently came to our attention that the analysis of the Treasury Department's proposed explosives tagging program performed by Management Science Associates, entitled "Evaluation of the Needs and Benefits of the Explosives Tagging Program," was incomplete as distributed publicly. Specifically, Appendix ll to the Evaluation, entitled "Countermeasures," was omitted. The Evaluation stated simply that Appendix ll was "Under Separate Cover."

It appears that Appendix ll also may have been omitted from the copies of the MSA Evaluation presented as part of BATF's and the Treasury's testimony before the House and Senate. SAAMI has been able to obtain a copy of Appendix ll through a formal Freedom of Information Act request. Our initial, informal request was refused on the grounds that the Appendix contained "sensitive material."

The "Countermeasures" set forth in Appendix ll consist of various methods for thwarting the tagging program by removing tagants from explosives and by mixing tagged explosives in order to make tracing of the explosives even more difficult than under ideal conditions. SAAMI, the National Rifle Association and the Institute of Makers of Explosives have pointed out many of these same or similar methods for easily defeating the tagging program in their respective testimonies before the Subcommittee. The BATF and the Treasury Department have disputed these points without ever revealing that the MSA Evaluation recognized these same deficiencies in its final pages.

The Honorable Abraham Ribicoff
July 10, 1979
Page Two

A copy of Appendix ll is enclosed for your consideration. We also would request that a copy of Appendix ll be placed in the hearing record for S. 333.

Very truly yours,

Harry L. Hampton

Harry L. Hampton

Enclosure
cc: Members of the Senate
Committee on Governmental
Affairs

APPENDIX 11

COUNTERMEASURES

By:
Paul Dougherty and Julius Roth

The purpose of this section is to examine possible countermeasures which might be employed to defeat the effectiveness of identification and detection tagging. This discussion is based on current knowledge of the relative sophistication of groups that would employ explosives for illegal purposes.

A. Identification Tagging

The removal of the taggant from the explosive by magnetic separation is considered to be practical in the case of granular materials such as black powder, smokeless powder or ANFO.

Magnetic separation of taggants is ineffective in tagged dynamites and slurries because of the tacky nature of the matrix in which the taggents are located.

If taggants are made non-magnetic there is an alternate method which can be applied to explosives that are largely composed of ammonium nitrate (AN). Since AN is very soluble in hot water it is easy to make concentrated and dense AN-water solutions. In such solutions the taggants will float to the top and can be skimmed off. The water is then evaporated to reconstitute the explosive. Similar means of separating AN from adulterants have been used in Northern Ireland by the IRA.

B. Black Powder

Black powder is produced in a variety of grain sizes. For coarse black powder it is possible to remove the taggants by screening so that coarser grain black powder remains on the screen and the finer taggant falls through the screen. This can be overcome by making the taggant the same size as the black powder grain.

C. Mixed Explosives

The mixing of tagged explosives of different lots either by design or accident can work both for and against the investigator. It can work for the investigator by showing a combination of taggants at the scene and that same combination in the possession of the suspect. It could also help establish that the bombing was committed by a group (conspiracy) who obtained explosives from different sources. This can, however, work against the investigator because a bomb filled with explosives from many sources could be most difficult to track back to a suspect or suspects.

Another aspect of this mixing problem would be the deliberate mixing of a small amount of tagged dynamite with untagged smokeless powder loaded into a pipe bomb. This could confuse the picture as to what explosive was used and make the tracing much more difficult.

D. Disruption of Taggant Supply

If a sole source is used for procurement of taggants there is always the possibility that it will become a target for bombings. If the bombing is successful in destroying the source of supply, the manufacture of taggants will be curtailed and the manufacture of explosives would have to be curtailed or some untagged explosives will have to be sold until taggant production is resumed.

One must also consider the diversion (hijacking) of taggant material before it is added to the explosive. Thus, consideration must be given to the security of the taggants from their point of manufacture to their addition to the explosive.

Stolen taggant material and/or taggants removed from other lots of tagged explosives could be deliberately mixed into an explosive to confuse its tracing.

A. Detection of Explosives

Various methods have been considered for the detection of natural vapors or deliberately added vapor-producing taggants. Both of these methods depend on the vapor reaching a detection system.

It is possible to defeat a vapor detection system by preventing the vapor from reaching the detector by enclosing the explosive construction in a barrier. One terrorist group is known to have spent many hours in teaching its members how to wrap explosives in plastic to create a barrier to prevent detection of the bomb to be placed in a public building. They were taught to use gloves and change them frequently so that explosive material (and fingerprints) would not be transferred to the outside of the package.

This is the simplest method and with care and a little thought can be used to defeat almost any vapor detection system. Barriers can be much more elaborate depending on the equipment available to the bombers. Such devices as hermetically sealed containers, that are total vapor barriers, which have a pair of built-in contacts for fusing the device, are not beyond the ability of some groups. However, it is doubtful that they will go to this extreme as long as other simpler methods work. Since vapor detection can be defeated by a determined and intelligent person, wide-spread publicity of this method of detection may alert the determined person to take precautions in building his device. On the other hand, publicity may deter some bombers. This deterrent effect could be increased through the wide-spread placement of "dummy" detectors made to resemble the real detectors.

B. Dielectric Measurement Techniques

While this is still in the experimental stage and the limits of this technique are not fully known, it is possible to consider some ways to defeat it. One method would be to introduce cigarette pack foil or similar material into the explosive package. This

could greatly confuse the detectability of explosives by the dielectric measurement technique. Furthermore, "dummy" explosives could be sent through the mails to generate many false alarms.

C. Dual-Energy Tomography

Dual-energy tomography is being proposed as a means of detecting explosives based on their density and atomic number. It is unknown just how effective this will be for explosives of all types in their original form but additional testing now in progress may give some indication of its effectiveness. It is also important to determine whether tomography can detect and identify explosives in disguised form. For example, sheet explosives made to appear as part of the material or lining of a suitcase. "Dummy" material might also be used to create false alarms.

Will Scott
Vice President
North American Governmental Affairs

Ford Motor Company
The American Road
Dearborn, Michigan 48121

July 20, 1979

The Honorable Abraham A. Ribicoff
United States Senate
Washington, D. C. 20510

Dear Senator Ribicoff:

We have reviewed S. 333, the bill you have introduced for the purpose of combating international and domestic terrorism. Ford has a direct concern, particularly as relates to the problem of airline hijackings and other airline-related terrorists' acts, as our management personnel travel widely throughout the world.

While we are not competent to judge the practicability or the merit of each of the bill's provisions, in the overall we believe your proposal contains an essentially sound set of U.S. Government actions. As you have pointed out, millions of Americans travel overseas each year, and under present conditions their safety too often is threatened by lack of adequate security provisions at foreign airports and lack of a good comprehensive program for combating international terrorism.

We commend you for the initiative you have taken on this subject and urge the adoption of legislation along the lines of your bill.

Sincerely,

Will Scott

SANFORD N. McDONNELL
President and Chief Executive Officer

MCDONNELL DOUGLAS
CORPORATION

30 July 1979

Honorable Abraham A. Ribicoff
United States Senate
337 RSOB
Washington, D. C. 20510

Dear Senator Ribicoff:

I am writing to express my support and thanks for your action in introducing S. 333, which if enacted will become the "Omnibus Antiterrorism Act of 1979."

We of McDonnell Douglas Corporation deplore all acts of terrorism. We believe that the United States must take firm measures to deal with and help prevent such acts.

Therefore we are in full agreement with the proposed legislation, and we hope that your colleagues in Congress will enact it into law.

Sincerely,

Sanford McDonnell

P. O. Box 516, Saint Louis, Missouri 63166

AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

815 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20006
(202) 637-5000

August 1, 1979

Honorable Abraham Ribicoff, Chairman
Senate Government Affairs Committee
United States Senate
Washington, DC 20510

Dear Chairman Ribicoff:

Recently, the Government Affairs Committee completed hearings on S. 333, the Omnibus Antiterrorism Act of 1979. The AFL-CIO strongly endorses this legislation as essential to assuring the safety of air passenger transportation for both the consumers of this service and the workers who provide it. At its twelfth Constitutional convention in 1977, the Federation endorsed Congressional approval of similar legislation; I have enclosed a copy of that policy statement.

To successfully combat terrorist activities, law enforcement authorities must have the ability to quickly identify and apprehend those engaged in such criminal conduct. Section 303 of S. 333, which mandates the use of taggants in explosive materials will, we believe, aid that effort immeasurably by helping to pinpoint the brand, manufacturer and seller of explosives used in criminal conduct. Such taggants have already proved their value by leading to the arrest of a suspect in the bomb-killing of a steelworker earlier this year. Section 303 will thus assure the application of the best technology to help solve the most violent of crimes. The AFL-CIO specifically supports Section 303 of the bill.

In summary, I would ask that this letter and attached Convention Resolution be included in the hearing record of the Committee on this legislation.

Sincerely,

Kenneth Young, Director
DEPARTMENT OF LEGISLATION

Enclosure

ALLIED PILOTS ASSOCIATION
GATEWAY PLAZA, 2621 AVENUE "E" EAST, SUITE 208 • ARLINGTON, TEXAS 76011 • PHONE: 817-261-0261
MAILING ADDRESS: P. O. BOX 5324, ARLINGTON, TEXAS 76011

August 7, 1979

Honorable Abraham Ribicoff
337 Russell Senate Office Building
Washington, DC 20510

Dear Senator Ribicoff:

The Allied Pilots Association, the collective bargaining agent of over 4300 flight crew members in the employ of American Airlines, Inc., wholeheartedly endorses all of the provisions of the Anti-Terrorism Act of 1979.

We wish to commend you and the other sponsors of this very important legislation that will thwart hijacking and terrorist activities. We have noted your remarks as reported in the Congressional Record regarding this bill, and are in complete agreement.

We would be pleased to assist in an effort to have this bill enacted into law.

Very truly yours,

Robert H. Malone
President

RHM/eb
cc: Board of Directors, APA
Air Line Pilots Association

The following page 448 contain material protected by the Copyright Act of 1976 (17U.S.C.): "SUSPECT IN TRUCK EXPLOSION CAPTURED WITH NEW SYSTEM" from the Washington Post, June 19, 1979

Re NDAA support for S. 333, the Omnibus Antiterrorism Act

Hon. JACOB JAVITS,
Ranking Minority Senator
Hon. ABRAHAM RIBICOFF,
Chairman, Senate Committee on Governmental Affairs,
Russell Senate Office Building,
Washington, D.C.

DEAR SENATORS: As Special Washington Counsel for the National District Attorneys Association (NDAA), I am pleased to advise you that at its December 1979 meeting, the full Board of Directors voted to support S. 333, the Omnibus Antiterrorism bill which has been jointly introduced by you for Senate consideration.

Several aspects of the legislation were of particular interest to over 1,500 state and local prosecutor offices and 7,000 association members who comprise the membership of NDAA. The proposed involvement of the federal government in an extensive, coordinated plan of attack against terrorism is a positive step in our present era of international unrest.

A particularly intriguing section of S. 333 is Section 303 concerning explosive taggants. The addition of "identification" taggants and "detection" taggants to explosive materials would have two salutary effects: (1) widespread knowledge that the distribution chain for a particular explosive could be traced to a particular retailer and/or detected prior to detonation and is therefore likely to inhibit the use of such explosives by potential criminals; and (2) the establishment of even a partial custody trail for an explosive is likely to assist law enforcement personnel in more rapid apprehension and prosecution of terrorists.

NDAA requests that its support for this enlightened and needed antiterrorism legislation be noted in the hearing record by the inclusion of this letter.

Respectfully yours,

PAUL L. PERITO,
Special Washington Counsel.

○

END