(Unclassified upon removal of enclosure (1))
DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20350-2000

IN REPLY REFER TO

5800
Ser N00N/08-0051
22 May 2008

From: Admiral K. H. Donald, USN
To: Secretary of Defense

Subj: (U) REPORT OF THE INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES SURROUNDING THE ACCOUNTABILITY FOR, AND SHIPMENT OF, SENSITIVE MISSILE COMPONENTS TO TAIWAN

Ref: (a) Your letter of 25 March 2008

Encl: (1) Final Report

1. (U) Reference (a) directed that I conduct an investigation into the facts and circumstances surrounding the accountability for, and shipment of, sensitive missile components to Taiwan on or around August 2006. Enclosure (1) contains the required report.

2. (U) The Investigation Team observed work, performed detailed forensic inspections, and conducted multiple site visits, record reviews, interviews, and mock scenarios. The Investigation Team received outstanding support from all organizations.

3. (U) The Department of Energy (DOE) has a separate and distinct regulatory responsibility for nuclear weapons safety determinations under the Atomic Energy Act and implementing directives. Therefore, I recommend that this report be shared with DOE for action it deems appropriate.

4. (U) Finally, given the significance of the fundamental changes required to implement the recommendations, I recommend that the Office of the Secretary of Defense, in particular the Under Secretary of Defense for Policy and the Under Secretary of Defense for Acquisition, Technology, and Logistics, assume an assertive role in conducting oversight of progress.

K. H. DONALD

Derived from: Multiple Sources
Formerly Restricted Data – "Unauthorized disclosure subject to administrative and criminal sanctions. Handle as RESTRICTED DATA in foreign dissemination. Section 144.b, Atomic Energy Act, 1954"

FINAL REPORT

INVESTIGATION INTO THE SHIPMENT OF SENSITIVE MISSILE COMPONENTS TO TAIWAN (U)

MAY 22, 2008

~~Derived from: Multiple Sources~~
~~Formerly Restricted Data~~ - Unauthorized disclosure subject to administrative and criminal sanctions. Handle as RESTRICTED DATA in foreign dissemination. Section 144.b. Atomic Energy Act, 1954

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Section 1 - EXECUTIVE SUMMARY (U)

(U) On 1 August 2006, Defense Distribution Depot Hill, Utah (DDHU) initiated a shipment to Taiwan of what was believed to be four helicopter batteries in order to fill a foreign military sales order. The items shipped had been misidentified, however, and were actually four classified MK-12 Forward Section Reentry Vehicle Assemblies[1] (forward section assemblies), which are used on the Minuteman III Intercontinental Ballistic Missile (ICBM). Three of these forward section assemblies arrived in Taiwan on 25 October 2006 and one arrived on 9 November 2006. The forward section assemblies were under Taiwan military control for approximately 17 months. After being secured on 21 March 2008 by the U.S. American Institute in Taiwan (AIT) and returned to U.S. custody, the forward section assemblies were returned to Hill Air Force Base on 25 March 2008.

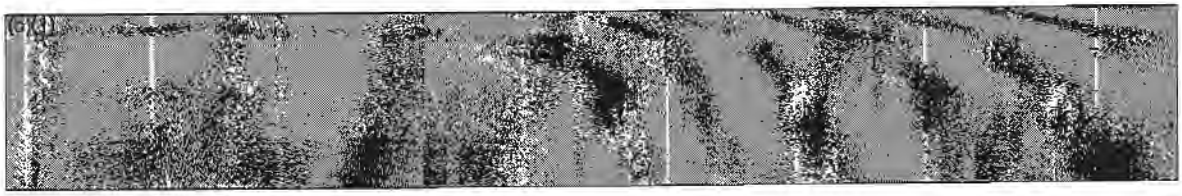
(U) On 25 March 2008, the Secretary of Defense appointed Admiral Kirkland H. Donald, USN, to conduct an investigation into the facts and circumstances surrounding the accountability for, and shipment of, these sensitive missile components to the Government of Taiwan on or around August 2006. This is the Final Report of that investigation.

1.1 (U) Findings

(U) The investigation identified that the specific cause of this event was Air Force and Defense Logistics Agency (DLA) sole reliance on, and lack of compliance with, supply system procedures – for marking, shipping, receiving, and storing classified material – to provide positive control of sensitive missile components. Mitigation strategies that would compensate for vulnerabilities in the supply system, such as independent inventory control/tracking and effective oversight, did not exist. The absence of such strategies created an environment where a series of supply chain errors caused the improper identification, stocking, and control of the four sensitive missile components that led to the subsequent shipment to Taiwan.

(b)(2),(b)(3):10 USC §128

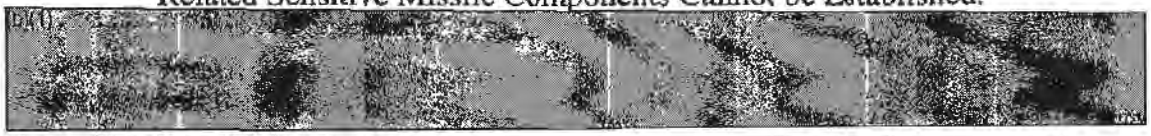
Section 1 – Executive Summary (U)



(U) Initially, the investigation focused on the facts and circumstances surrounding the mis-shipment of four forward section assemblies to Taiwan. As the supply chain management deficiencies leading to this mis-shipment became clear, the Investigation Team gained insight into and investigated broader but related sensitive missile component control issues in areas such as maintenance, quality assurance, engineering, inspection, self-assessment, and oversight. The investigation did not identify any findings that would affect the health and safety of the public. A number of areas requiring improvement are addressed in the following findings:

i. (U) Deficient Supply Chain Processes and Noncompliance with Related Procedures Degraded Control of Sensitive Missile Components.

ii. (U) Complete Inventory Validity for Forward Section Assemblies and Other Related Sensitive Missile Components Cannot be Established.



iv. (U) The ICBM Engineering Community Lacks a Clear Major Command Owner and Has Deteriorated in the Exercise of Technical Authority.

v. (U) Oversight, Inspection, and Internal Audits Have Been Ineffective in Resolving Recurring Deficiencies.

vi. (U) The ICBM Communities, including Maintenance, Engineering, Operations, and Logistics Organizations, Have a Poorly Developed Self-Assessment Culture.

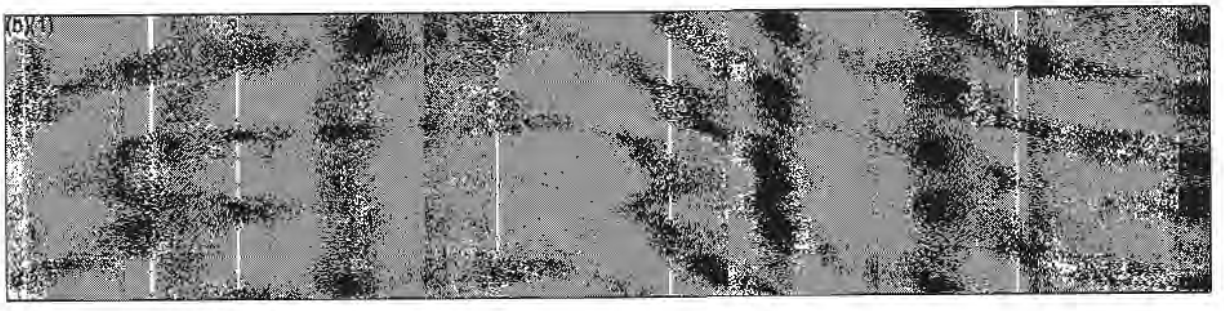
vii. (U) Changes to Air Force Policies and Processes Degraded the Level of Control for Sensitive Missile Components.

1.2 (U) Systemic Problems

(U) Rather than an isolated occurrence, the shipment of the four forward section assemblies to Taiwan was a symptom of a degradation of the authority, standards of excellence, and technical competence within the nation's ICBM force. Similar to the bomber-specific August 2007 Minot/Barksdale nuclear weapons transfer incident, this incident took place within the larger environment of declining Air Force nuclear mission focus and performance. The investigation identified three systemic problems at the root of this decline.

Section 1 – Executive Summary (U)

(U) First, Air Force execution of responsibilities for nuclear weapons and associated systems derived from the Atomic Energy Act (AEA) 42 U.S.C. §2011 et. seq., and implementing directives, is hindered by dispersal of authority and responsibilities among several entities. The absence of a dedicated authority of sufficient stature to exercise overall responsibility and stewardship of Air Force nuclear weapons and for setting and enforcing appropriately rigorous standards across the nuclear weapons enterprise impedes long-term improvement.



(U) Third, although the concern has been recognized for more than a decade, the Air Force has not effectively addressed the decline in nuclear expertise. This was evidenced by a lack of officer engagement during work, at both operational wings and the depot, where many material control and procedural compliance deficiencies were identified. Likewise, some of the officers lacked a technical understanding of this work.

(U) In this light, the report identified three systemic problems that must be addressed in order to restore the primacy of the Air Force's nuclear enterprise.

i. (U) Dispersed Authority and Responsibility Have Created an Environment Ill-Suited for Setting and Maintaining Standards Necessary for Nuclear Weapons
ii. (U) Lack of a Culture that Is Internally Driven to Address Systemic Weaknesses has Resulted in Degraded Performance
iii. (U) The Declining Trend of Air Force Nuclear Expertise Has Not Been Effectively Addressed

1.3 (U) Accountability

(U) The report assessed the accountability for creating, failing to recognize, or failing to act to correct an environment where a series of supply chain errors caused the improper identification, stocking, and control of the four sensitive missile components that led to the subsequent shipment to Taiwan.

Section 1 – Executive Summary (U)

(U) Senior leadership accountability also arises from the findings indicative of an overall decline in Air Force nuclear weapons stewardship – a problem that has been identified, but not effectively addressed, for over a decade. Both the Minot/Barksdale nuclear weapons transfer incident and the Taiwan mis-shipment, while different in specifics, have a common origin – the gradual erosion of nuclear standards and lack of effective oversight by Air Force leadership.

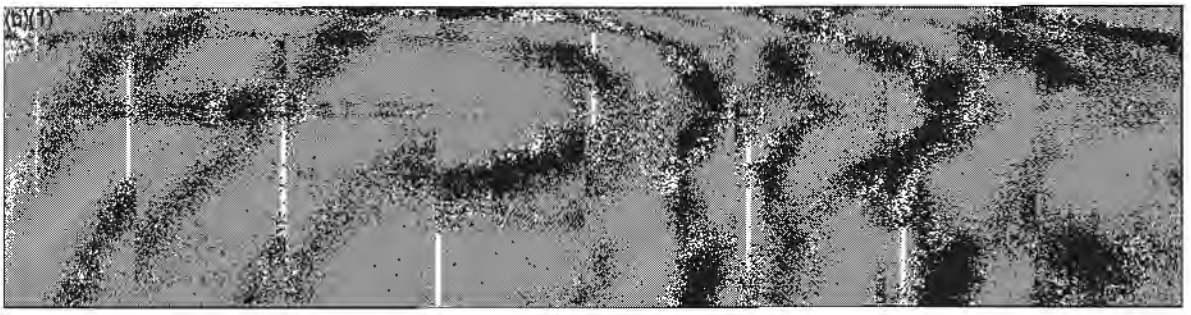
(U) The report identifies Air Force and DLA officers who should be held accountable for failing to identify and/or correct longstanding, systemic issues within their areas of responsibility. There is no dedicated authority who exercises responsibility for all aspects of Air Force nuclear weapons. The report focuses upon officers who bear significant responsibilities in one or more of the multiple chains of command cited in this report.

(U) Current and former Air Force and DLA field grade commanders also bear significant responsibilities for the deficiencies identified in this report. The Air Force and DLA should assess each commander's responsibility and culpability. Finally, the report states that commanders of the responsible organizations should assess individual working-level responsibility and culpability.

1.4 (U) **Recommendations**

(U) This investigation presents recommendations to improve the control of sensitive missile components. Further, based on additional discrepant areas identified during the investigation, recommendations are presented to improve overall performance of the Air Force nuclear enterprise. Accordingly, the investigation recommends that the Secretary of Defense direct the Air Force and DLA to:

1.4.1 (U) Immediately upgrade knowledge of and compliance with existing technical orders and requirements to restore discipline in the control of sensitive missile components. Furthermore, establish follow-up mechanisms to ensure effectiveness.



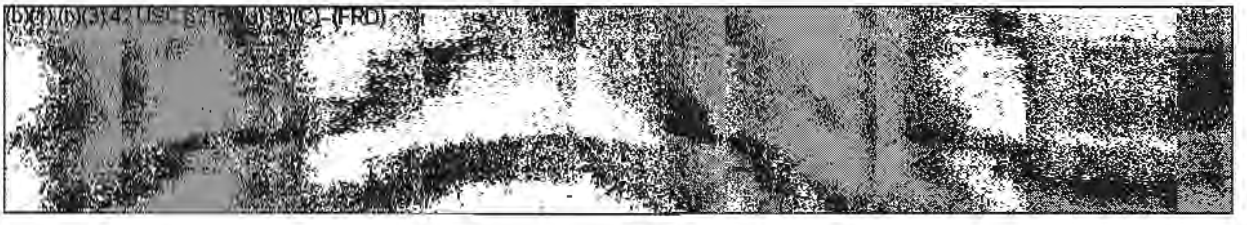
Section 1 – Executive Summary (U)

1.4.3 (~~S~~) Conduct an in-depth review of supply chain processes for shipping, receiving, marking, storage, and inventory control of classified components.

1.4.4 (U) Establish a dedicated authority for Air Force nuclear weapons with overall responsibility under the Atomic Energy Act and implementing directives. This authority should be of sufficient stature and be responsible for all aspects of Air Force nuclear weapons stewardship. The authority should be solely accountable to the Secretary of the Air Force and the Chief of Staff of the Air Force for nuclear standards across the Air Force.

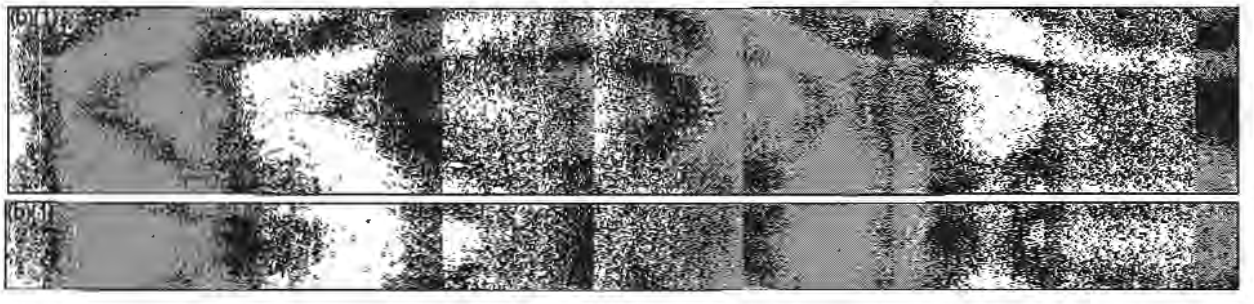
1.4.5 (U) In parallel with establishing a dedicated authority, the Air Force should review its nuclear organizational structure and correct dispersed lines of responsibility, particularly with respect to ICBM system sustainment.

1.4.6 (U) Establish a nuclear enterprise culture that is internally driven to critically identify, document, and effectively correct systemic weaknesses.



1.4.7.(a) (U) This designation remains appropriate for the current technological threat environment; and

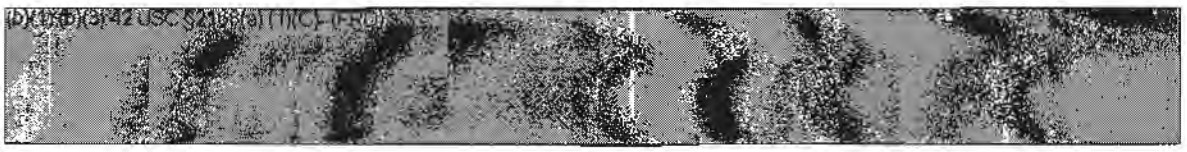
1.4.7.(b) (U) Similar surety determinations are being made in an appropriately formal manner.



Section 1 – Executive Summary (U)

1.4.8.(b) (U) Lack of effective engineering checks and balances above the group level;

1.4.8.(d) (U) Adequacy of existing processes for maintaining historical documentation (i.e., comprehensive material history) for nuclear missile components; and



1.4.9 (U) Perform a review of the radiation safety programs utilized at the Air Force wings that handle nuclear weapons to determine whether:

1.4.9.(a) (U) Personnel and area radiation monitoring requirements are adequate and being met for current handling configurations;

1.4.9.(b) (U) Training and work practices are adequate for ensuring exposure is as low as reasonably achievable and for properly handling and controlling radiological wastes; and

1.4.9.(c) (U) Routine external and internal inspections and command oversight of the radiation safety program are adequate.

1.4.10 (U) Re-examine the Chief of Staff of the Air Force Recommendation Matrix that resulted from the August 2007 Minot/Barksdale nuclear weapons transfer incident to gain a more thorough understanding of the underlying systemic issues, and revise the actions accordingly. Additionally, methods to assess the long-term effectiveness of the revised actions should be established, including development of both quantitative and qualitative assessment strategies.

1.4.11 (U) Re-assess Air Force and DLA responses to past audits of inventory management. Recurring supply chain process failures and weaknesses identified during this investigation were also identified in previous audits, indicating that systemic issues need to be more thoroughly understood and comprehensively addressed.

1.4.12 (U) Determine actions necessary to measurably address the declining trend of Air Force nuclear expertise. Numerous reviews over the last decade have highlighted the negative trend, yet little discernable progress has been made. This investigation found cases where individuals in leadership positions lacked the technical and professional experience necessary to effectively analyze problems and develop sound solutions.

1.4.13 (U) Hold leadership accountable for measurable progress in correcting the longstanding systemic problems discussed herein.

Section 2 - METHODOLOGY (U)

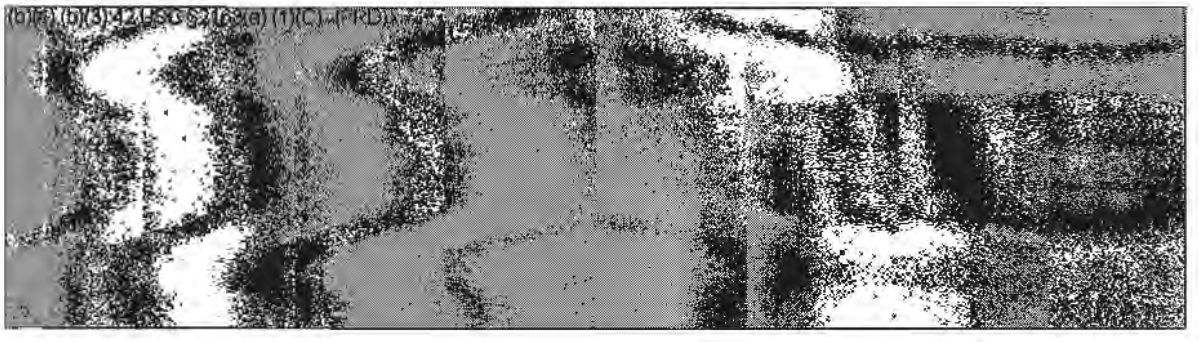
2.1 (U) Scope of Investigation

2.1.1 (U) In his 25 March 2008 letter (see Appendix (A)), the Secretary of Defense directed an investigation into the facts and circumstances surrounding the accountability for, and shipment of, sensitive missile components provided to the Government of Taiwan on or around August 2006. The investigation accomplished the eight specific tasks outlined by the Secretary of Defense.

2.1.2 (U) During the course of the investigation, the Secretary of Defense directed the Secretary of the Air Force, the Secretary of the Navy, and the Director of the Defense Logistics Agency (DLA) to conduct a "comprehensive review and physical inventory by serial number of all nuclear weapons and nuclear weapons-related material under the possession or custody" of their respective department or agency. This investigation was conducted independently from those reviews and inventories. To the extent that common information was reviewed or gathered, it was done so separately and with no sharing of findings or analysis.

2.1.3 (U) An initial assessment was completed on 14 April 2008 (see Appendix (B)) in which the Investigation Team recommended consideration of three near-term actions to mitigate existing vulnerabilities. The Secretary of Defense concurred, and on 2 May 2008 directed the Air Force to:

2.1.3.(a) (U) Conduct a comprehensive inventory reconstruction of the Minuteman III missile forward section assemblies, including the number of units acquired and expended.



Section 2 – Methodology (U)

(U) The Secretary of Defense directed the Air Force to complete these actions by 25 May 2008.

2.1.4 (U) This investigation did not validate the inventory or reliability of the nuclear warhead stockpile. Likewise, this investigation did not audit any related functions performed by the U.S. Navy or the Department of Energy. To the extent that comparisons are made, they are based on information gathered during interviews and research, but do not represent a comprehensive analysis of the Navy's or the Department of Energy's programs.

2.2 (U) **Methods of Investigation**: This was an administrative investigation. The methods of investigation included: site visits to relevant commands (a complete list of organizations visited is included in Appendix (C)); record reviews; interviews of Air Force, DLA, U.S. Army Security Assistance Command (USASAC), contractor and other DOD personnel; observation of work; mock scenarios to replicate reentry vehicle dismantlement and relevant shipping and receiving processes (including electronic information exchanges); and detailed forensic inspections of the forward section assemblies.

2.3 (U) **Investigation Team**: The Investigation Team, led by Admiral Donald, was composed of twenty investigators; eight support personnel; and eight personnel from the Office of Naval Intelligence and Naval Criminal Investigative Service. A majority of the investigators had extensive experience in conducting administrative inquiries and audits. A complete roster of the Investigation Team is included in Appendix (D). The team received outstanding support from all locations visited.

2.4 (U) **Pertinent Chains of Command**: Figure 2-1 shows relevant portions of the pertinent chains of command. Appendix (E) contains more detailed description of the missions and functions of each of the relevant commands.

Section 2 – Methodology (U)

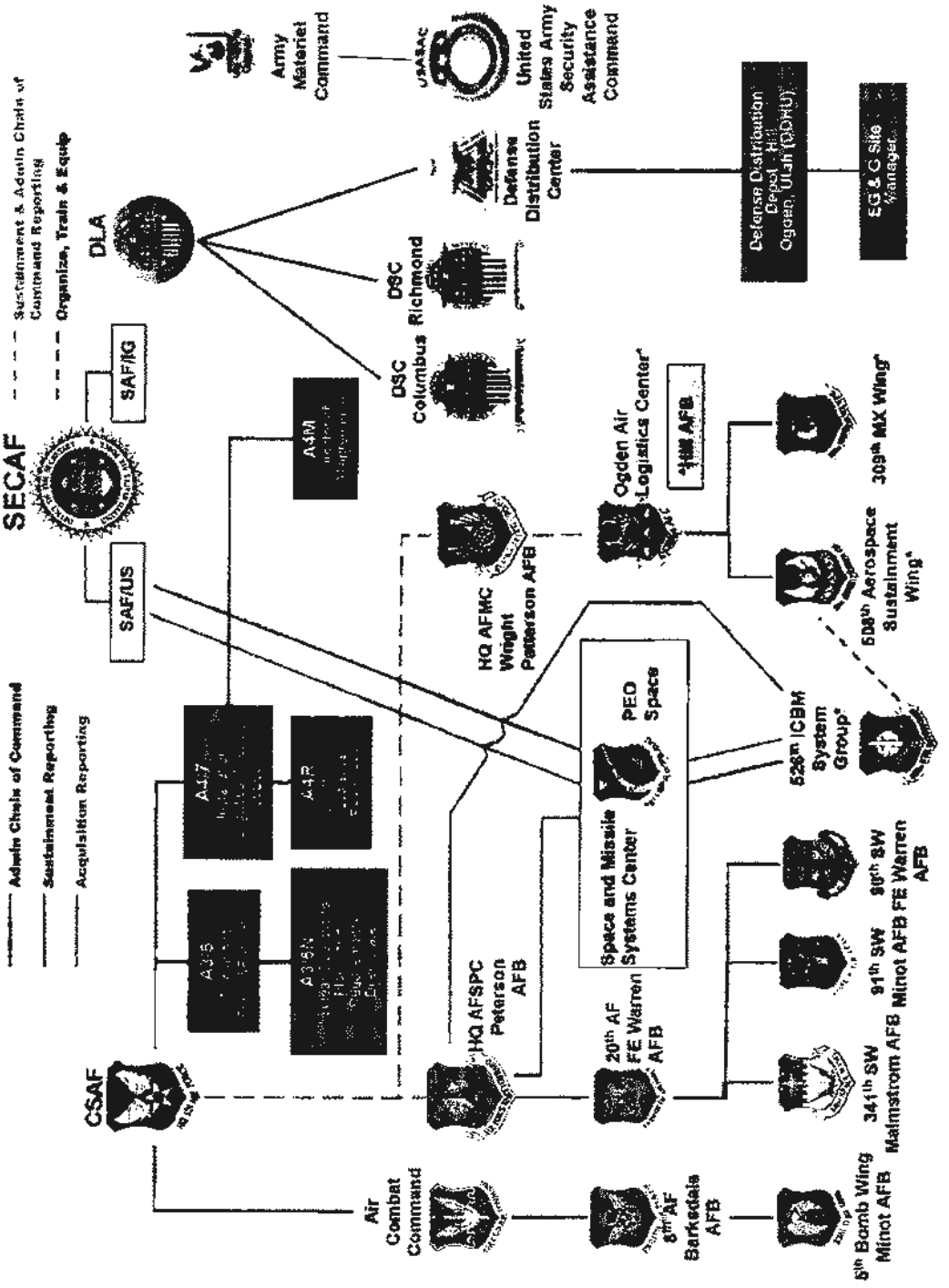


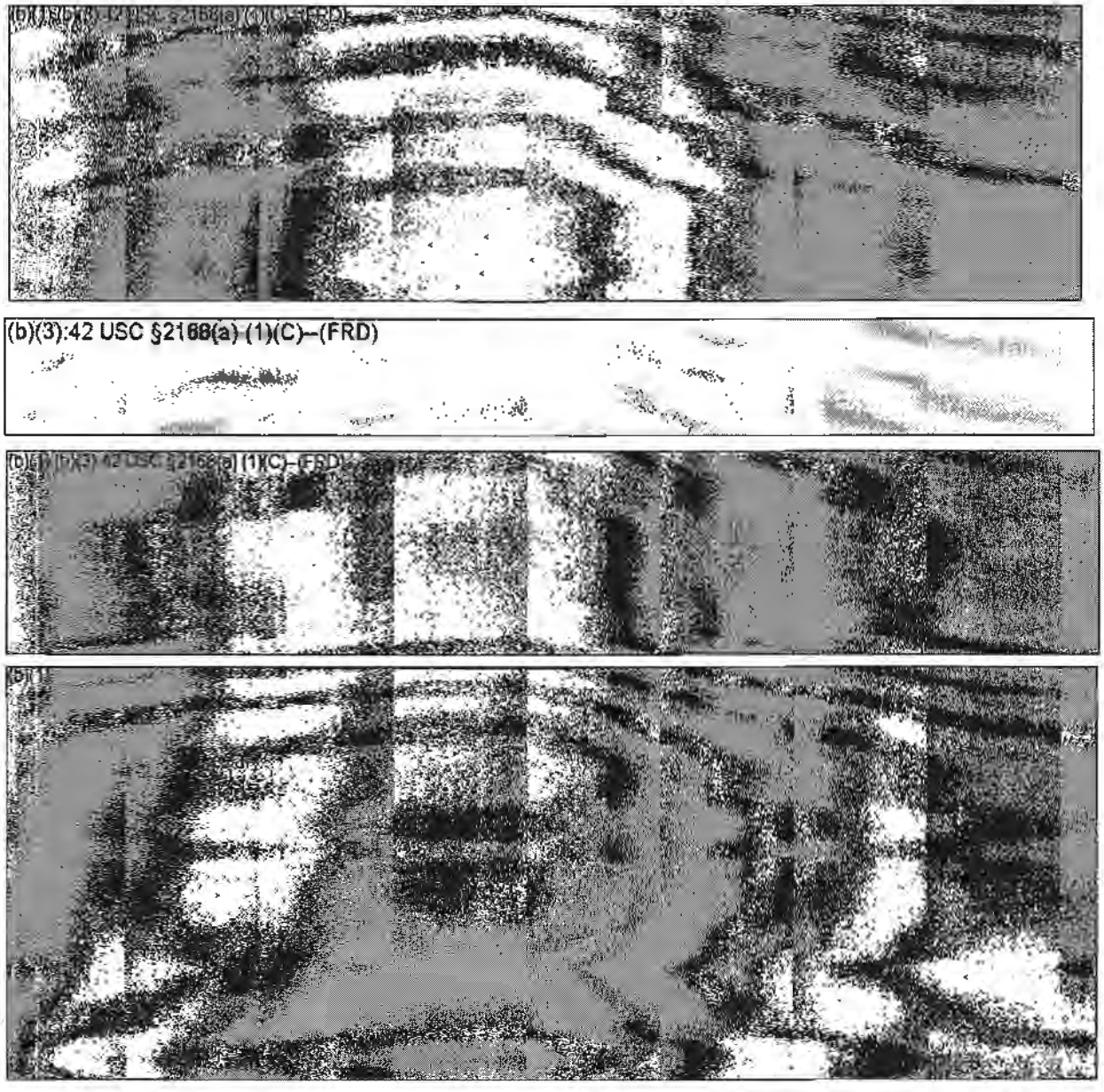
Figure 2-1

Section 3 - TIMELINE (U)

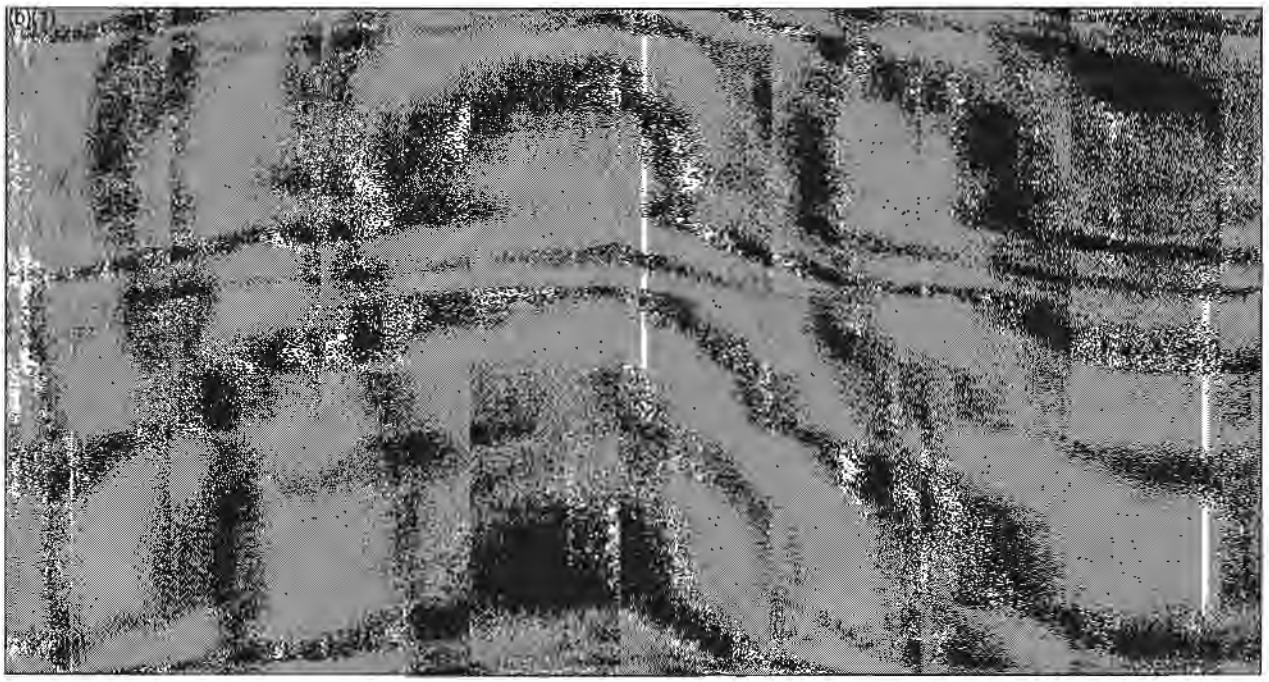
3.1 (U) Phase I (March 2005 through November 2006 arrival in Taiwan)
3.2 (U) Phase II (November 2006 Arrival in Taiwan through March 2008 Recovery)

(U) The below timeline has been updated from the version included in the initial assessment (Appendix (B)).

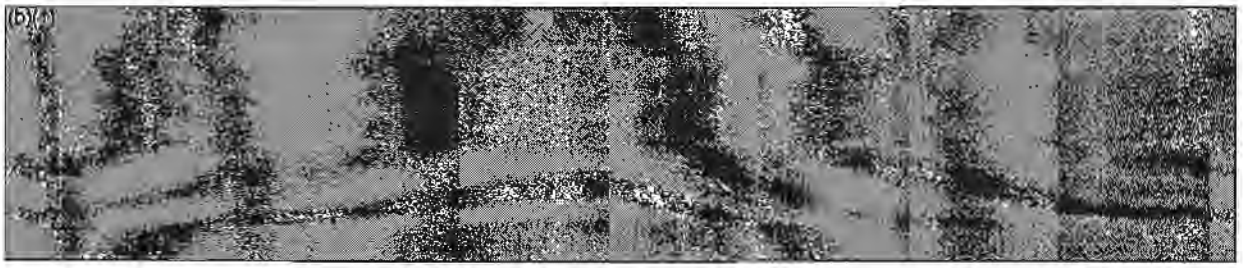
3.1 (U) Phase I (March 2005 through November 2006 arrival in Taiwan)

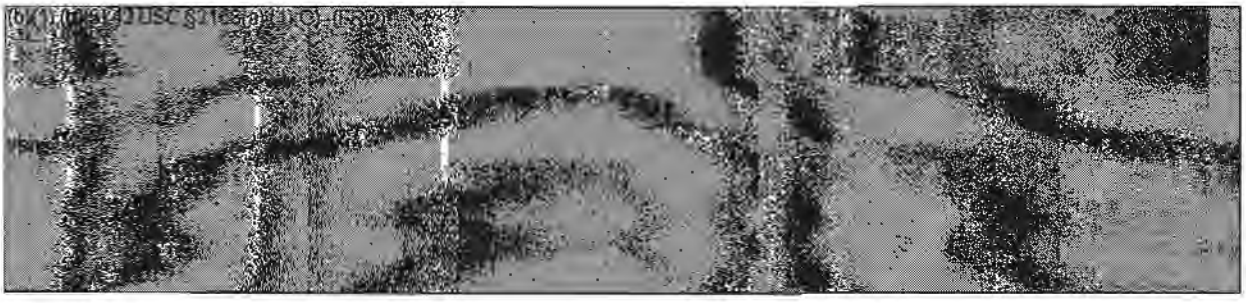


Section 3 – Timeline (U)



(b)(3):42 USC §2168(a) (1)(C)–(FRD)





3.1.4 (U) *16 June 2006, DDHU, Hill AFB*: DDHU received a Foreign Military Sales (FMS) requisition for four helicopter batteries, NSN 6140-01-290-6554.

3.1.5 (U) *1 August 2006, DDHU, Hill AFB*:

(b)(2)

Section 3 – Timeline (U)

(b)(2)

3.1.6 (U) *25 September 2006 and 15 October 2006:* (b)(2)

3.1.7 (U) *25 October 2006 and 9 November 2006, Taiwan*: Four containers with the forward section assemblies were received at Aviation Depot, Tainan, Taiwan. Three were received on 25 October 2006; one was received on 9 November 2006.

3.2 (U) **Phase II (November 2006 Arrival in Taiwan through March 2008 Recovery)**

(b)(1)

3.2.2 (U) *19 January 2007, USASAC:* (b)(2)

3.2.3 (U) *5 June 2007, USASAC*: USASAC submitted a follow-up WebSDR, the first action since the original 19 January 2007 hardcopy SDR submission. This action by USASAC was late, contrary to DLAI 4140.55/AR 735-11-2 (Reporting of Supply Discrepancies).

(b)(1)

Section 3 – Timeline (U)

3.2.5 (U) *24 September 2007, DSCR:* (b)(2)

3.2.6 (U) *25 November 2007, DSCR:* (b)(2)

(b)(1)

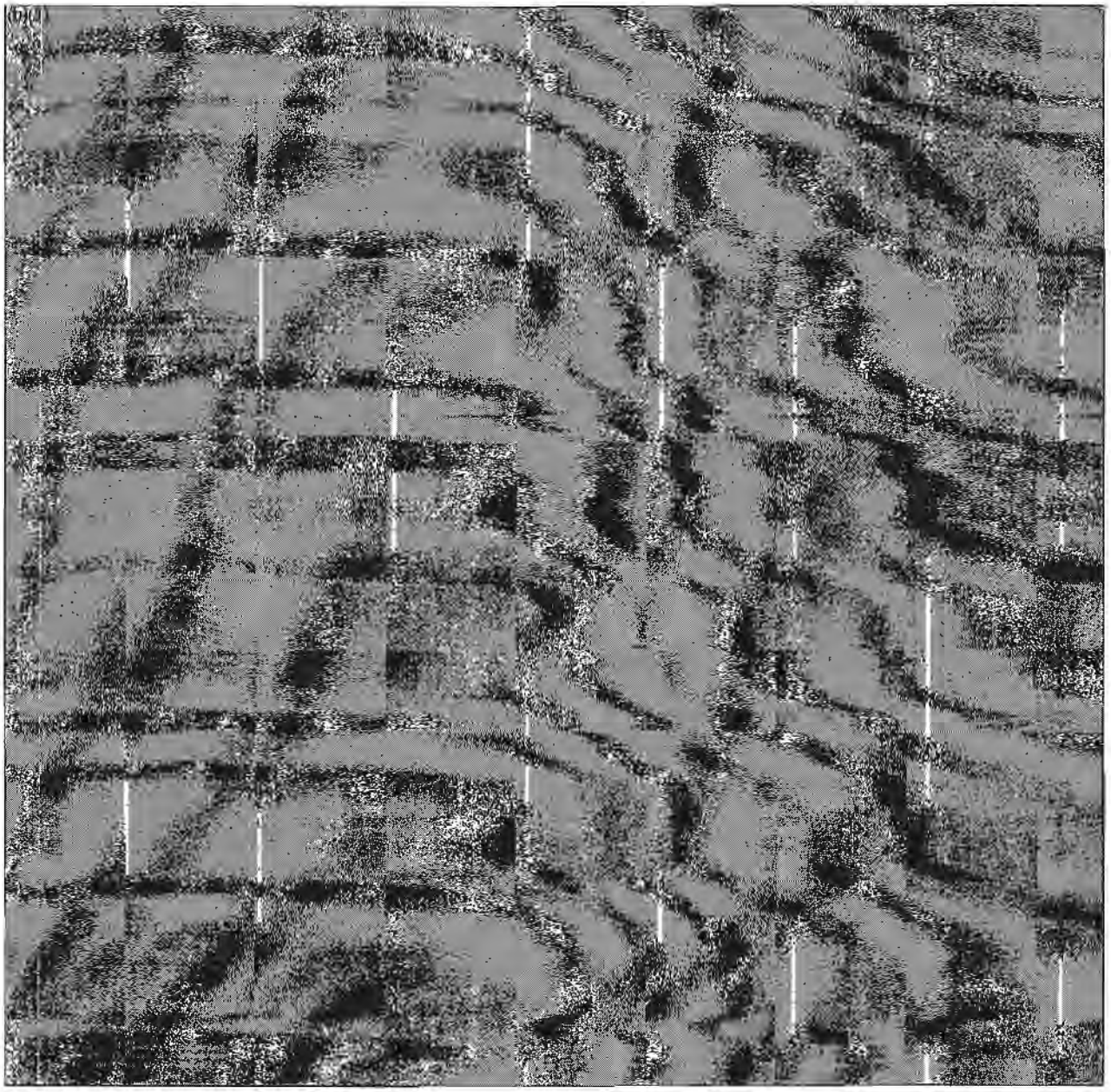
3.2.8 (U) *19 March 2008, Hill AFB:* (b)(2)

3.2.9 (U) *19 March – 25 March 2008:* (b)(2)

Section 4 - COUNTERINTELLIGENCE ASSESSMENT (U)

4.1 (U) Interviews of U.S. American Institute in Taiwan (AIT) Personnel in Taiwan

4.2 (U) Forensic Inspections of Forward Section Assemblies



Section 5 - FINDINGS (U)

5.1 (U) Deficient Supply Chain Processes and Noncompliance with Related Procedures Degraded Control of Sensitive Missile Components.

5.2 (U) Complete Inventory Validity for Forward Section Assemblies and Other Related Sensitive Missile Components Cannot be Established.

5.3 (b)(1),(b)(3) 42 USC § 2168(a)(1)(C) [redacted]

5.4 (U) The ICBM Engineering Community Lacks a Clear Major Command Owner and Has Deteriorated in the Exercise of Technical Authority.

5.5 (U) Oversight, Inspection, and Internal Audits Have Been Ineffective in Resolving Recurring Deficiencies.

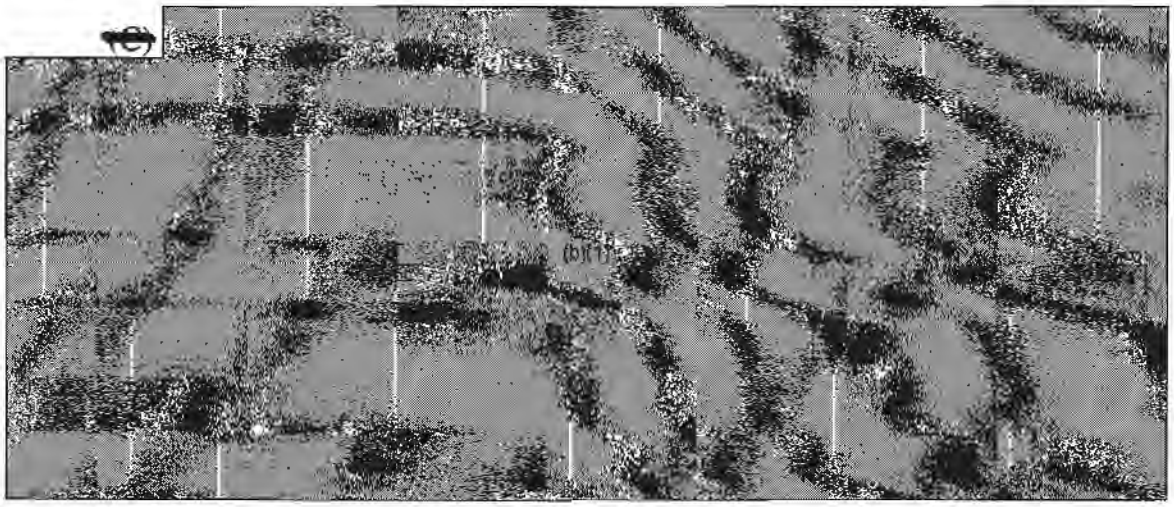
5.6 (U) The ICBM Communities, including Maintenance, Engineering, Operations, and Logistics Organizations, Have a Poorly Developed Self-Assessment Culture.

5.7 (U) Changes to Air Force Policies and Processes Degraded the Level of Control for Sensitive Missile Components.

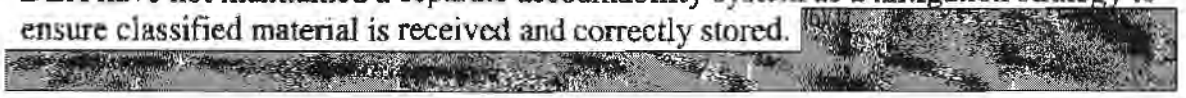
Section 5 – Findings (U)

(U) Initially, the investigation focused on the facts and circumstances surrounding the mis-shipment of four forward section assemblies to Taiwan. As the supply chain management deficiencies leading to this mis-shipment became clear, the Investigation Team gained insight into and investigated broader but related sensitive missile component control issues in areas such as maintenance, quality assurance, engineering, inspection, self-assessment, and oversight. Specifically, the following findings were noted:

5.1 (U) Deficient Supply Chain Processes and Noncompliance with Related Procedures Degraded Control of Sensitive Missile Components

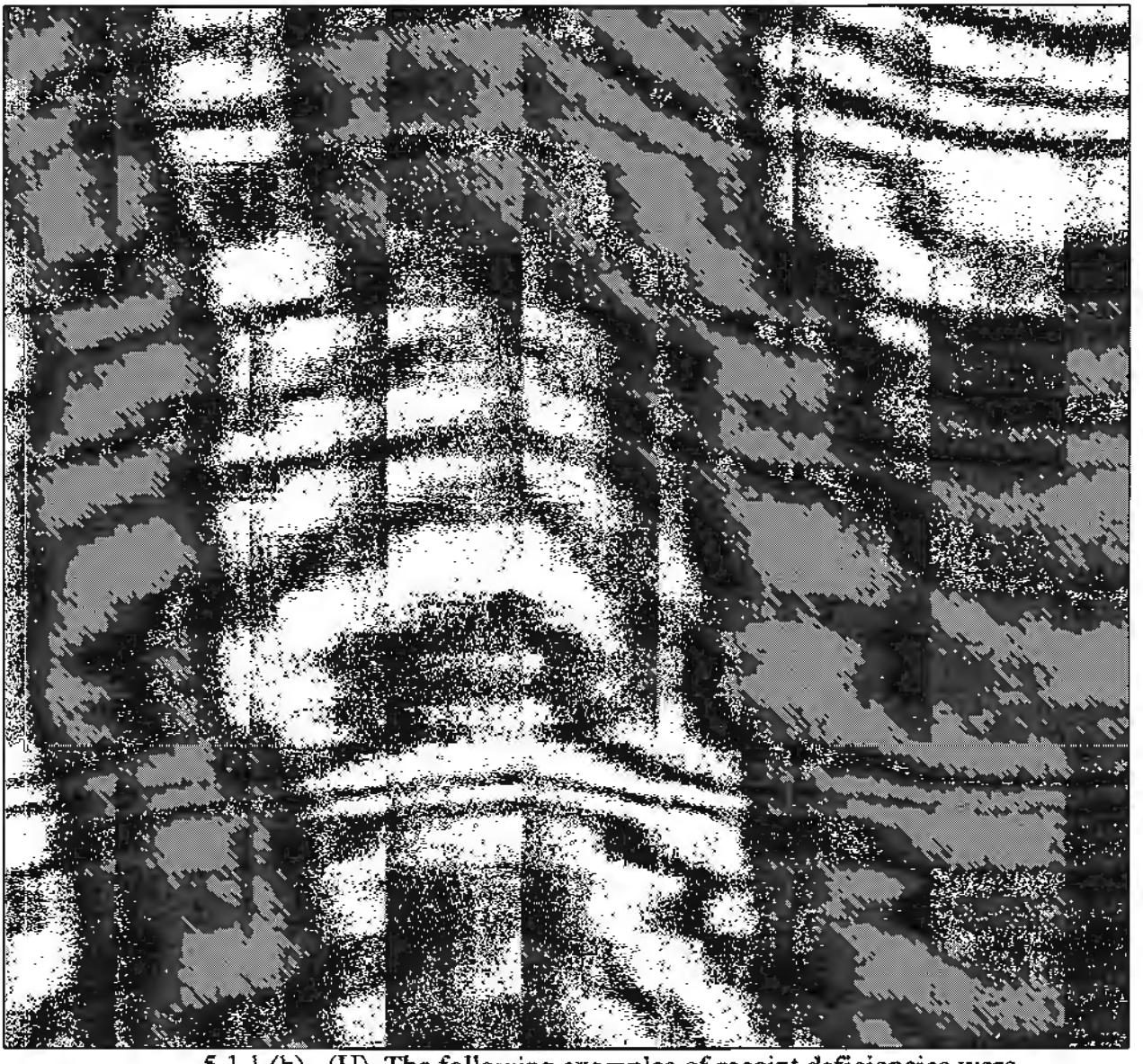


5.1.1 ~~(C)~~ Non-Compliance With Existing Marking, Shipping, Receiving, and Storing Requirements Led to Failure to Adequately Protect Classified Material: Noncompliance with requirements and deficient DLA and Air Force processes resulted in the loss of control of classified material and directly contributed to the shipment of the four forward section assemblies to Taiwan in 2006. Air Force and DLA have not maintained a separate accountability system as a mitigation strategy to ensure classified material is received and correctly stored.



5.1.1.(a) (U) The following examples of shipping deficiencies were identified at Defense Distribution Depot Hill, Utah (DDHU) and the Logistics Readiness Squadrons (LRSs) at F. E. Warren, Malmstrom, and Minot Air Force Bases (AFBs). Similar errors contributed to the shipment of the four forward section assemblies to Taiwan:

Section 5 – Findings (U)



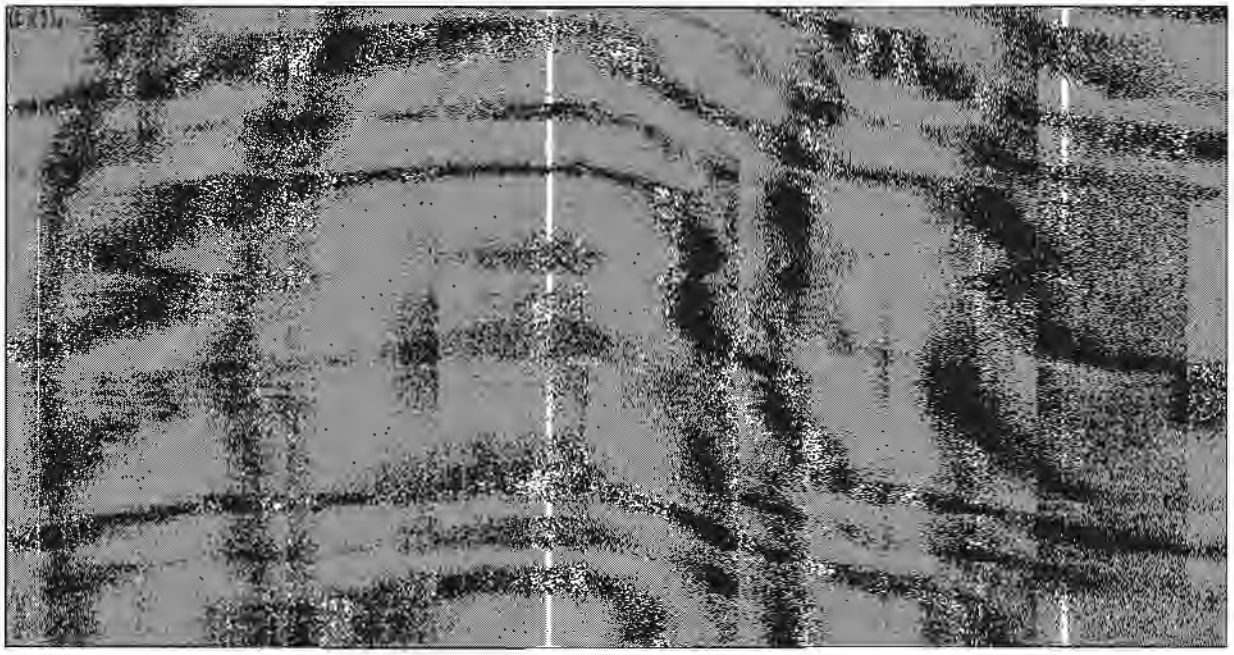
5.1.1.(b) (U) The following examples of receipt deficiencies were identified at DDHU and at F. E. Warren, Malmstrom, and Minot AFBs LRSs. Similar errors contributed to the shipment of the four forward section assemblies to Taiwan:

5.1.1.(b).(1) (U) The DDHU contractor (EG&G) receiving personnel did not open containers to positively identify the material when MIL-STD-129 (Military Marking for Shipment and Storage) NSN markings were not present, contrary to DLA requirements. This created opportunities for improperly receiving and marking material.

5.1.1.(b).(2) (U) DDHU did not consistently submit Supply Discrepancy Reports (SDRs) to notify shipping activities when shipment and material errors were identified, as required by DOD 4140.1-R (DOD Supply Chain Material

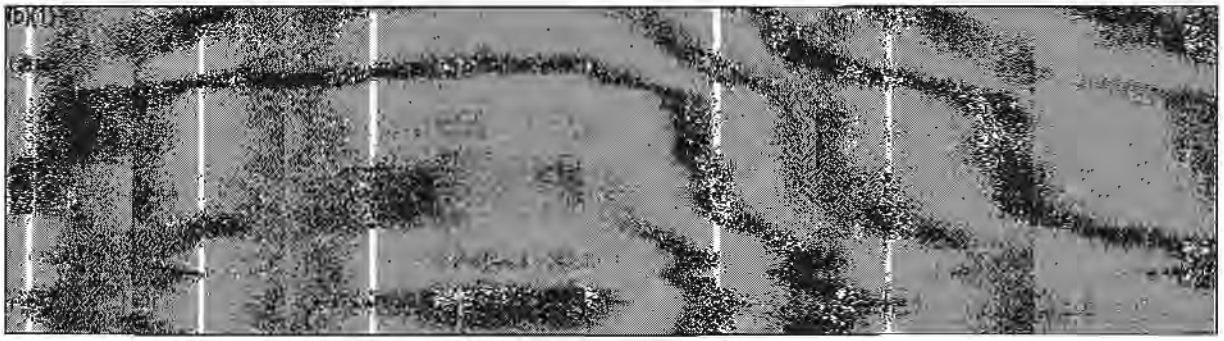
Section 5 – Findings (U)

Management Regulation) and DLAI 4140.55 (Reporting of Supply Discrepancies). This perpetuated errors in the shipping and receipt process.

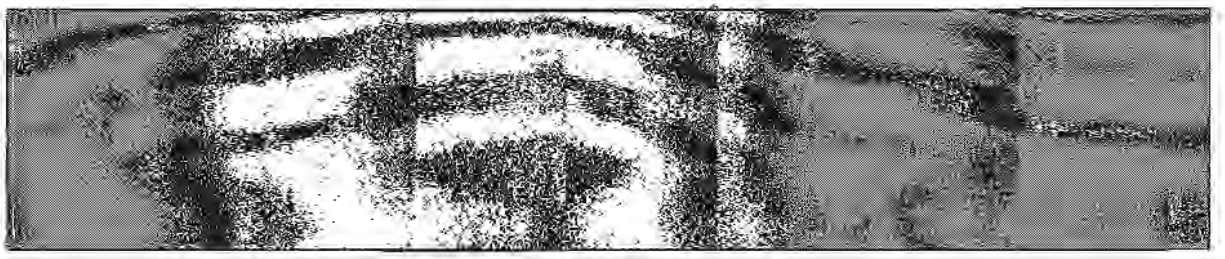


5.1.1.(c) (U) Stowage deficiencies included the following examples:

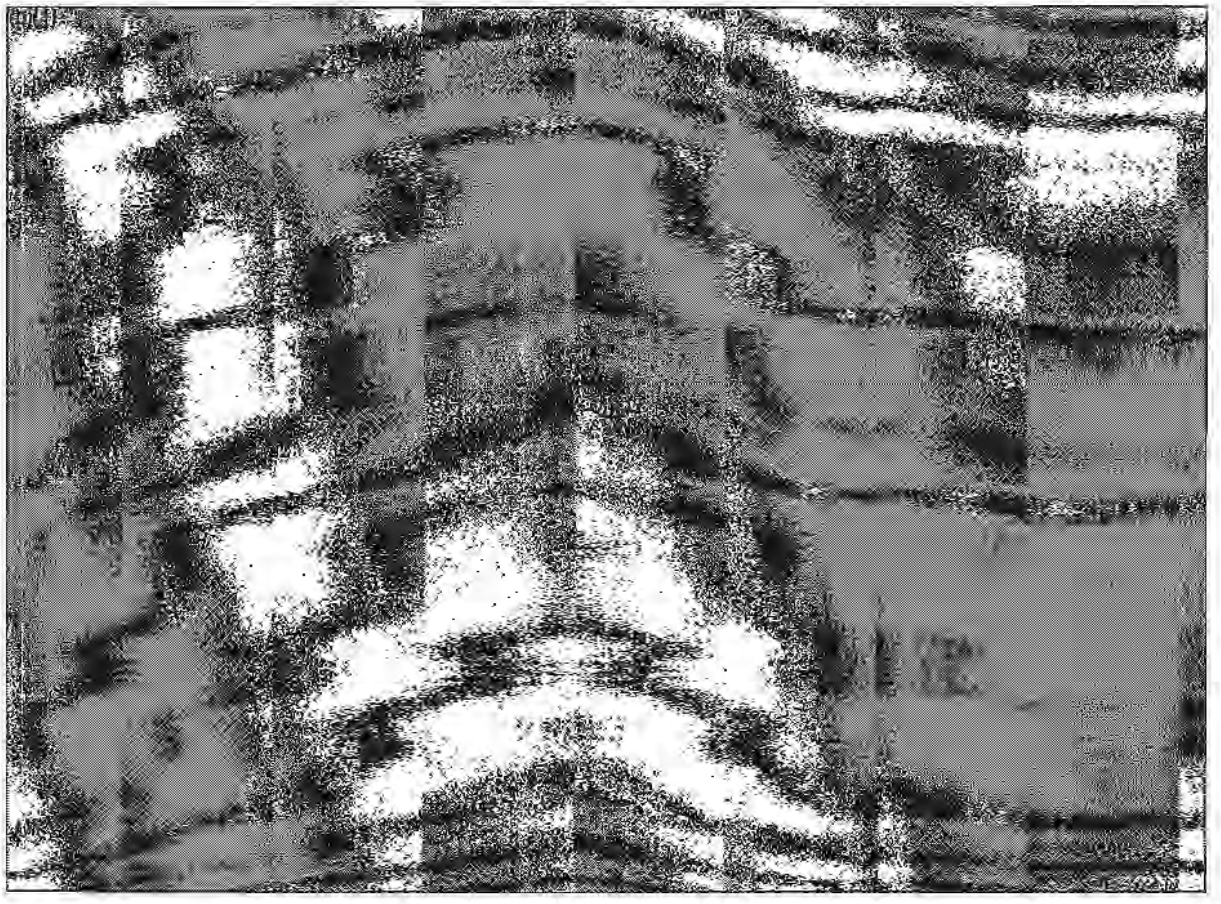
5.1.1.(c).(1) (U) DDHU and Weapons Storage Area (WSA) personnel at F. E. Warren, Malmstrom, and Minot AFBs were storing items with markings and labels on the exterior packaging that were unrelated to the contents of the container. This practice was contrary to DOD 4145.19-R-1 (Storage and Materials Handling), created confusion in inventory, and increased the likelihood of issue and shipping errors.



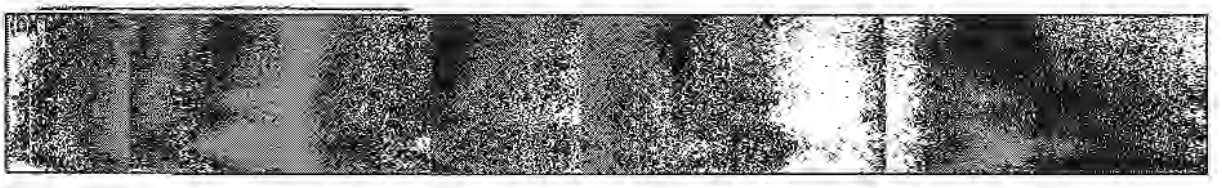
Section 5 – Findings (U)



5.1.2.(a) (U) Integrated Material Management deficiencies included the following examples:



5.1.2.(a).(3) (U) Training for IMMs was inadequate and inconsistent, with a large amount of the training conducted on-the-job. Further, the complexity of the IT applications and their interfaces necessitates comprehensive

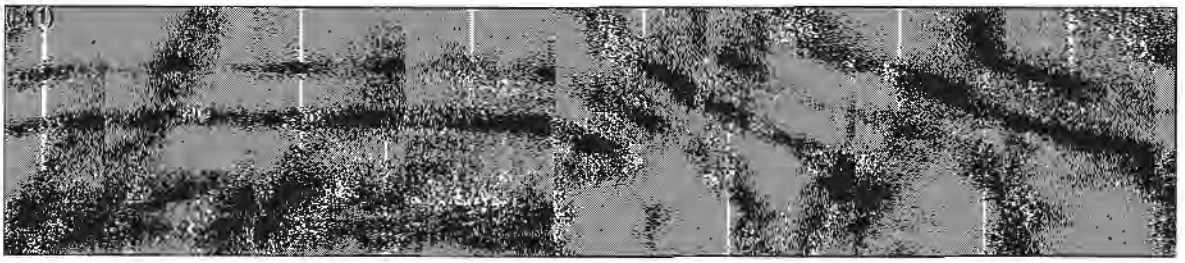


Section 5 – Findings (U)

IMM training to ensure effective execution of supply chain management responsibilities. This overall ineffective training limited IMM performance.

5.1.2.(b) (U) Numerous IT system deficiencies degraded positive control of sensitive missile components. For example:

5.1.2.(b).(2) (U) Electronic material issue records generated by the Air Force supply chain management system (Standard Base Supply System) were not properly formatted and required manual correction by Air Force personnel to establish in-transit records. This cumbersome process, required for thousands of transactions. has the potential to prevent in-transit material visibility if not manually corrected each time.

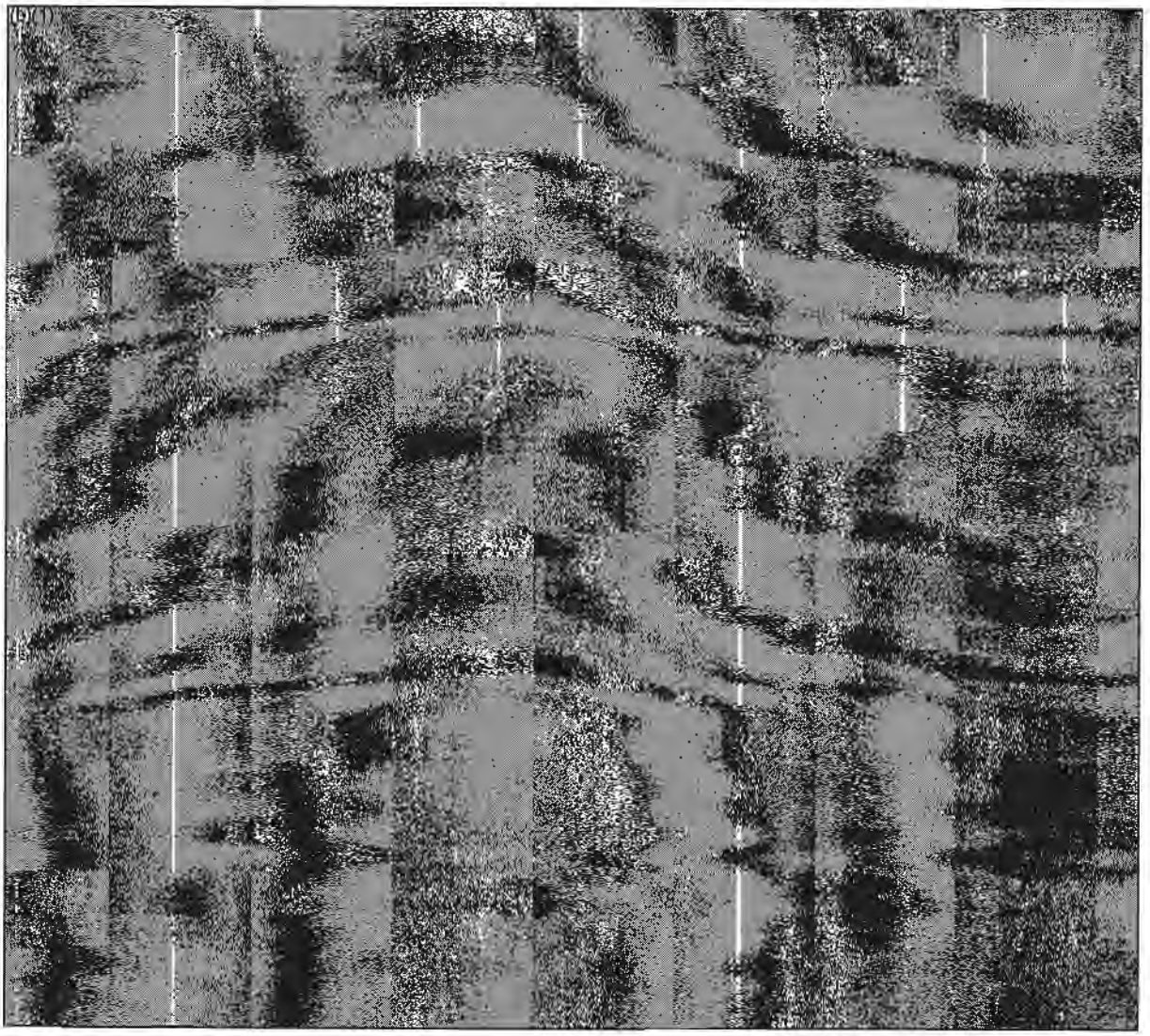


5.1.3 (U) DLA SDR Processing Failed to Protect Classified Information: DLA initially received the SDR for the mis-shipped sensitive missile components in January 2007. This SDR was neither fully processed nor resolved until the components were identified and recovered in March 2008. DLA's lack of timely and correct disposition of the SDR, including failing to positively identify the material prior to authorizing disposal, contributed to the delayed recovery and had the potential to allow compromise of the material.

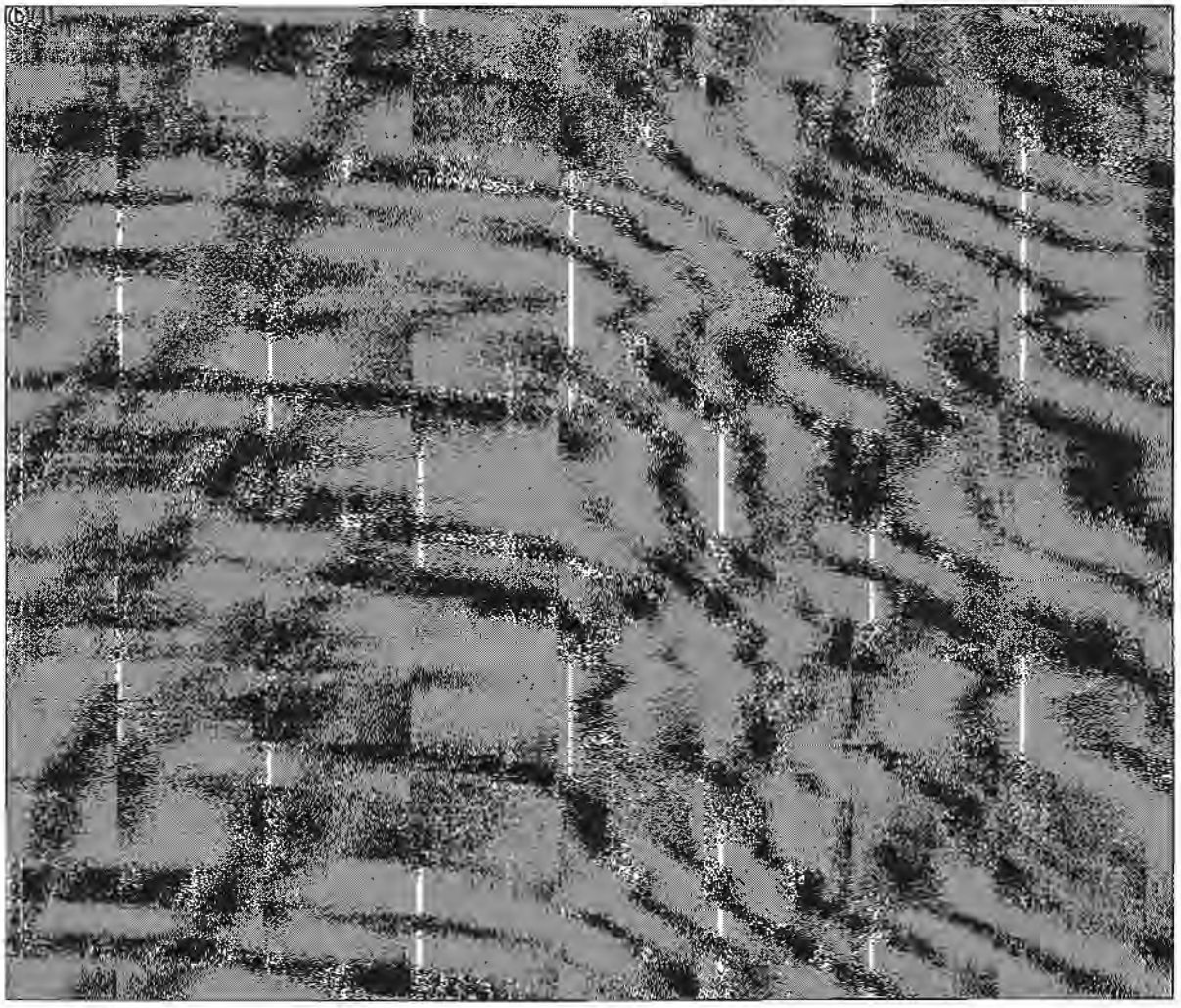
Section 5 – Findings (U)

5.2 (U) **Complete Inventory Validity for Forward Section Assemblies and Other Related Sensitive Missile Components Cannot be Established**

(U) The Air Force cannot provide an exact accounting of MK-12 forward section assemblies due to incomplete records of manufacturing, expenditure, disposal and on-hand quantities. Furthermore, since the four forward section assemblies were discovered in Taiwan, other improperly controlled sensitive missile components were identified, including another forward section assembly stored under yet a different battery NSN in unclassified storage. This mismarked forward section assembly was received at DDHU about one year after the improper receipt of the four Taiwan forward section assemblies, and followed a similar receipt path. Thus, the improper receipt of the four Taiwan forward section assemblies was not an isolated occurrence.

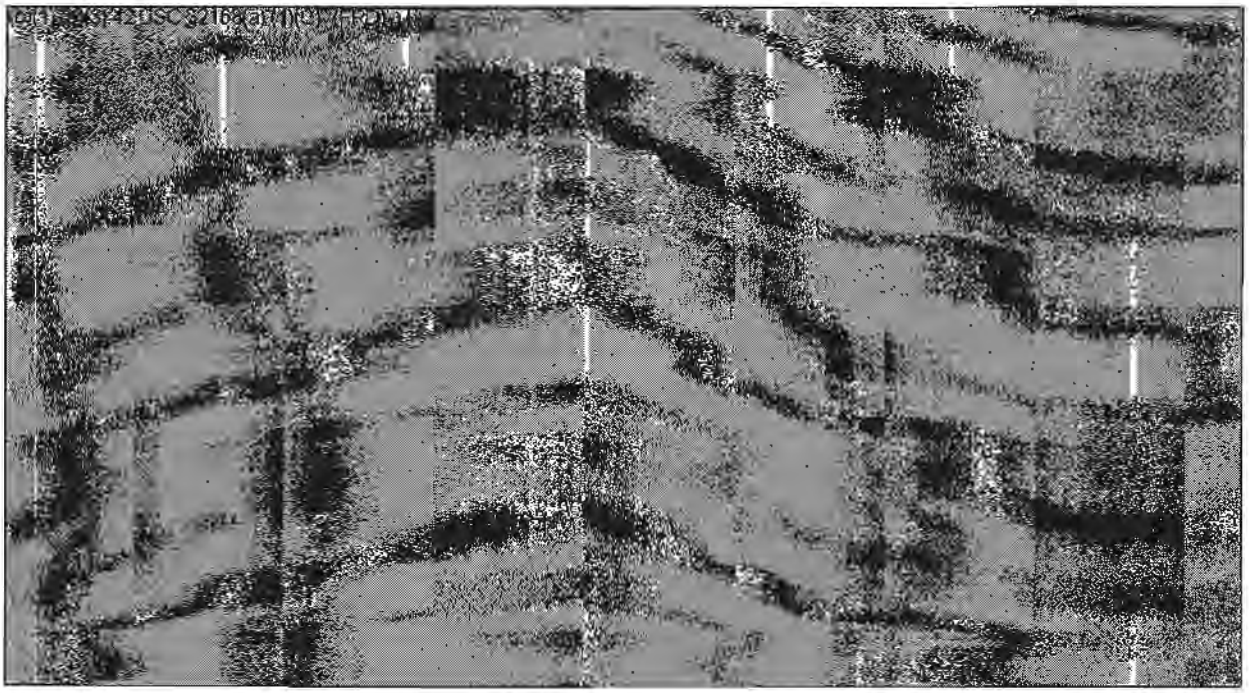


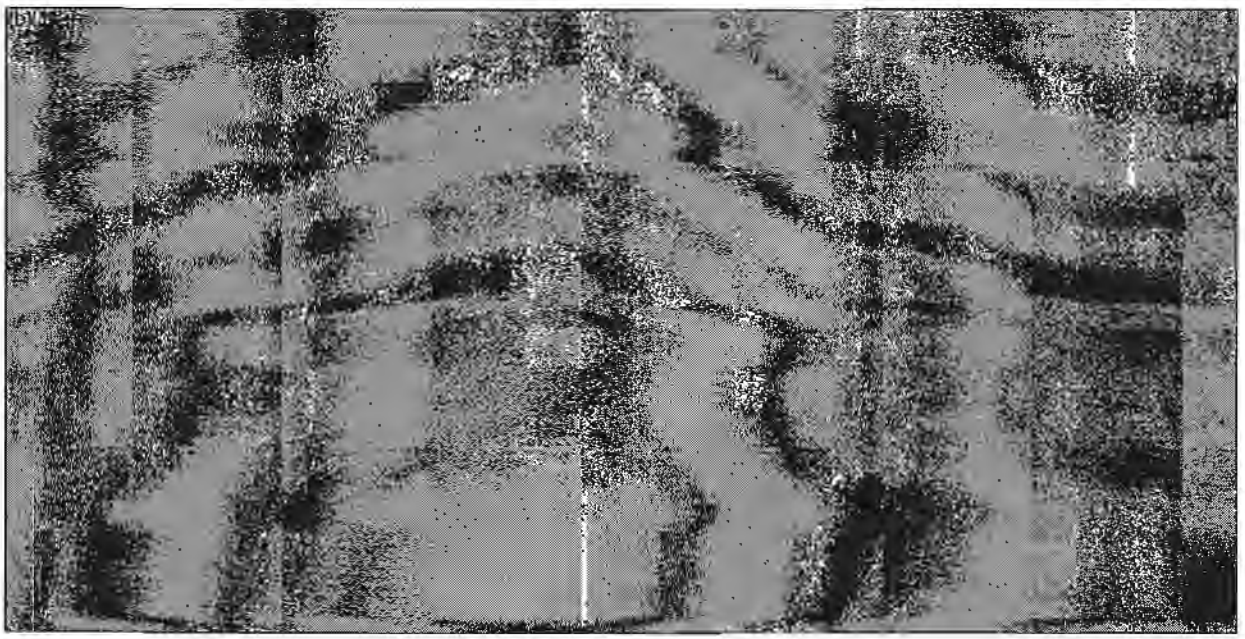
Section 5 – Findings (U)



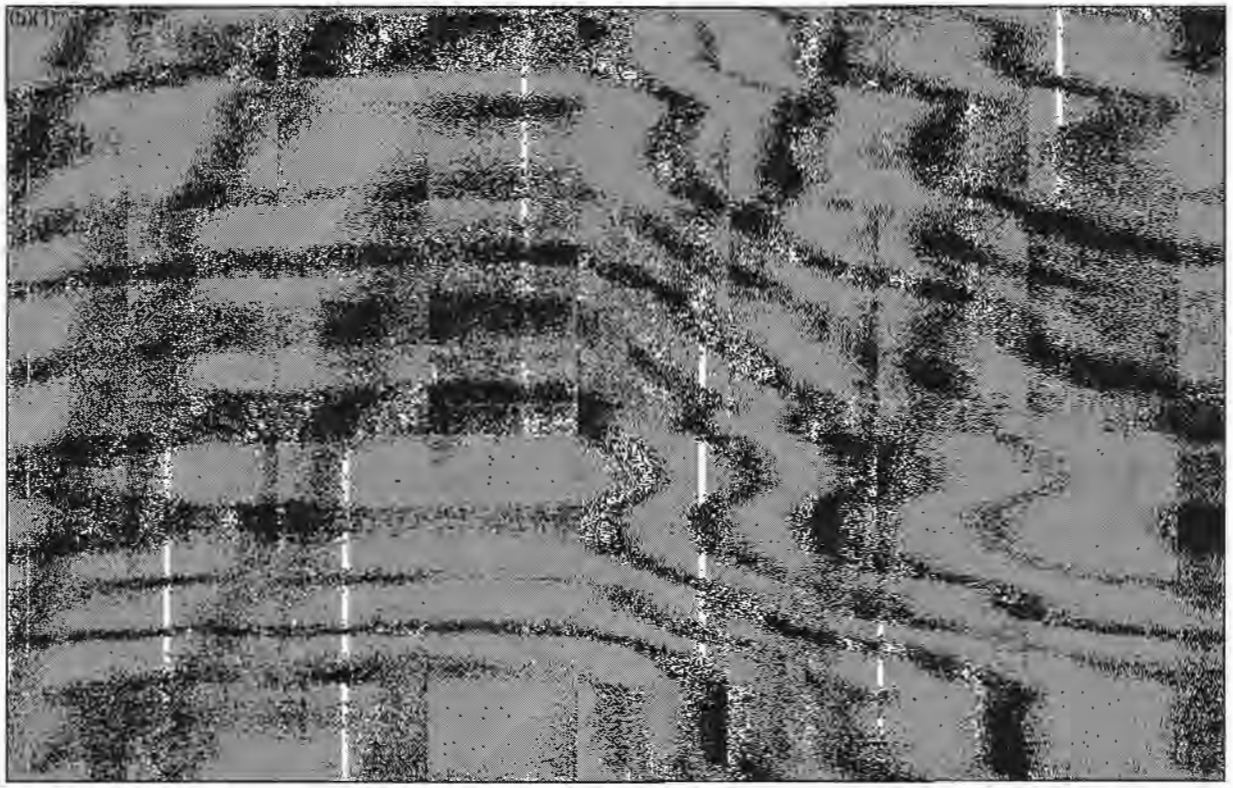
Section 5 – Findings (U)

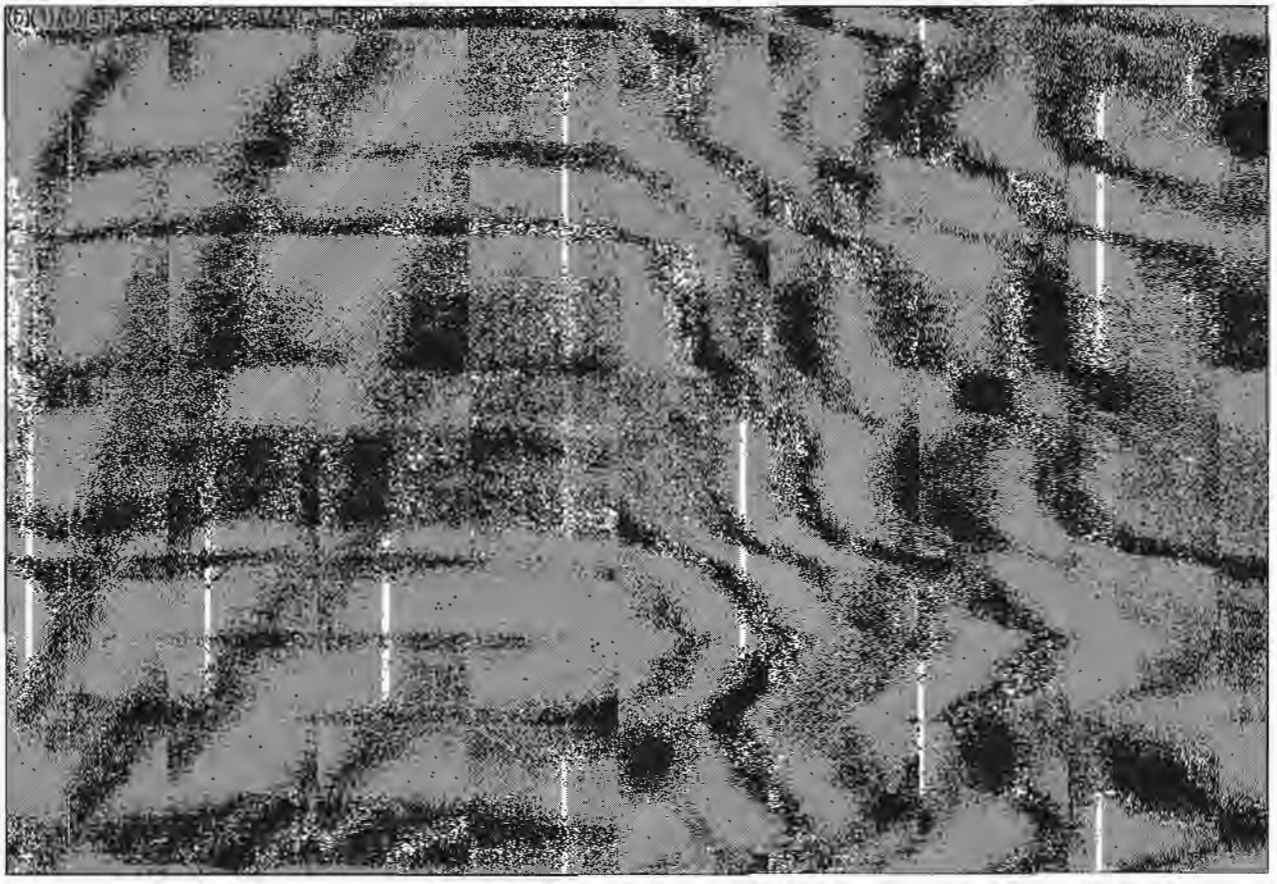
(U) Problems exist with the control of material within Air Force depot maintenance and operational wing commands that perform work on reentry systems and associated components, including forward section assemblies. These problems indicate systemic weaknesses in maintenance execution and processes. Detailed observations and discussions on this finding are provided in Appendix (H).





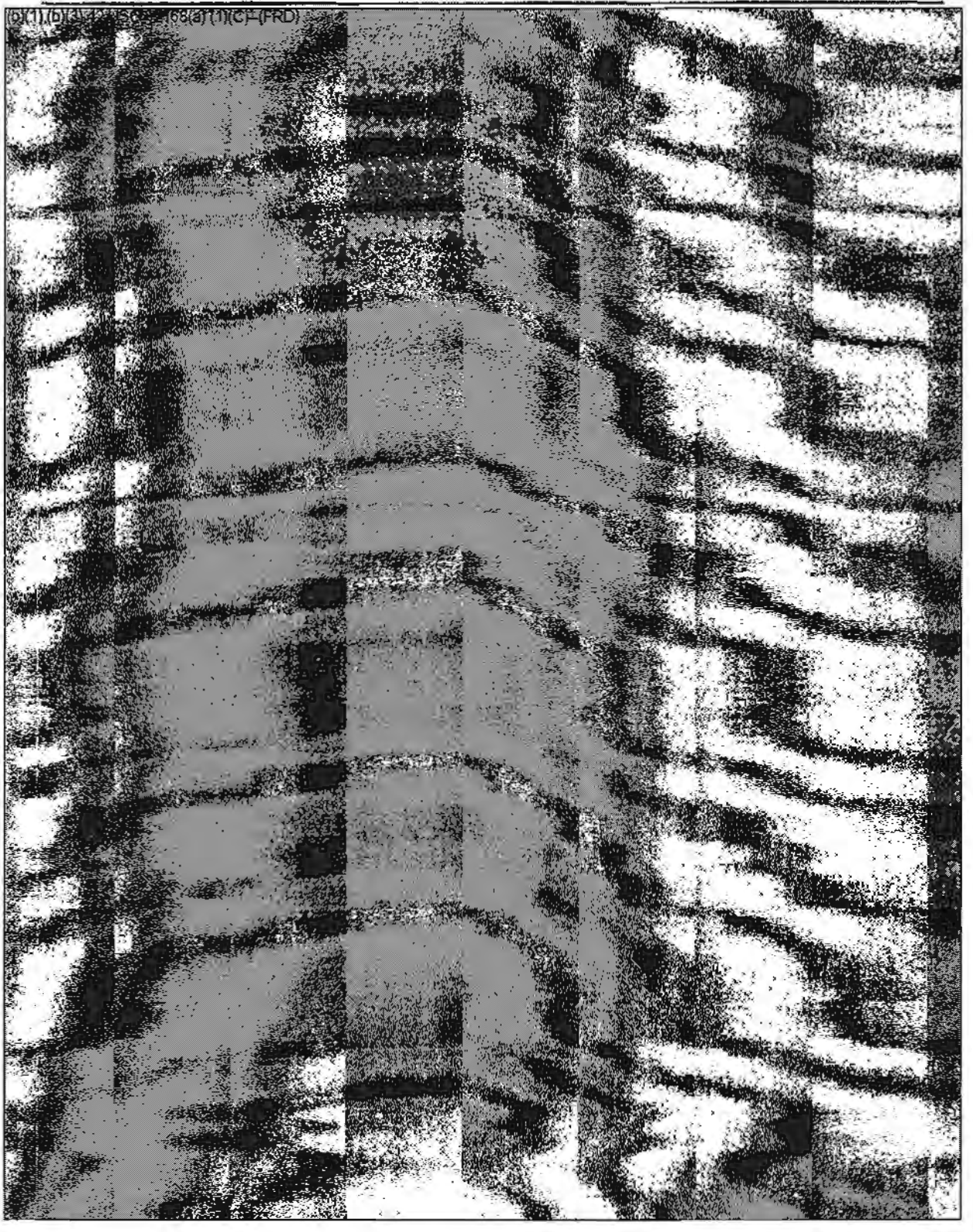
Section 5 – Findings (U)





Section 5 – Findings (U)

(b)(1),(b)(3) 42 USC 2168(a)(1)(C)-(FRD)



Section 5 – Findings (U)

5.4. (U) **The ICBM Engineering Community Lacks a Clear Major Command Owner and has Deteriorated in the Exercise of Technical Authority**

5.4.1 (U) Responsibility for the ICBM Systems Group is Ambiguous:

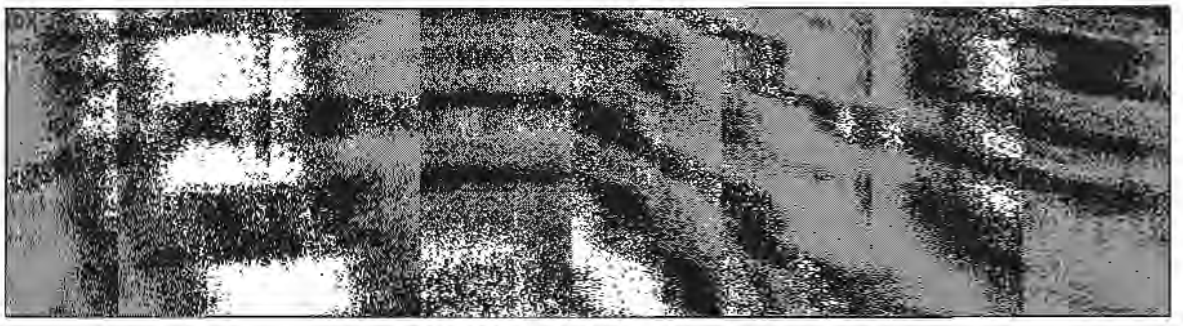
5.4.1.(a) (U) In discussions with the Investigation Team, neither Air Force Materiel Command (AFMC), Air Force Space Command (AFSPC), nor the Program Executive Office for Space (PEO/SP) claimed sustainment responsibilities for the ICBM system. However, the Team discovered that PEO/SP is assigned sustainment of the Minuteman III ICBM weapons system per the Air Force Acquisition Program Master List. Conflicting with this list, a March 2007 Memorandum of Agreement (MOA) between AFMC and AFSPC for supported-supporting relationships states that AFSPC A4 is the 'Chief Sustainment Officer' for all PEO/SP programs. In a brief to the Investigation Team, the 526th ICBM Systems Group stated that sustainment responsibility lies with AFSPC A4. As a result of these contradictory documents, there is disagreement among the four involved commands as to where ICBM sustainment actually lies (there was common agreement that acquisition and rating responsibility for the 526th ICBM Systems Group was via PEO/SP and 'organize, train and equip' was via AFMC). This lack of Major Command (MAJCOM) and PEO lifecycle ownership is symptomatic of the dispersed responsibilities within the ICBM community.

5.4.1.(b) (U) AFSPC funds the 15 year, $125,000,000 per year ICBM Prime Integration Contract (IPIC) with Lockheed Martin that began in 1995. This contract is the primary source of sustainment engineering support for the 526th ICBM Systems Group. In 2006, AFSPC cut funding to the IPIC by $25,000,000 per year (150 Full Time Equivalents (FTEs)/yr). This cut was done without performing a detailed review of the engineering services provided by the contract or of the risks incurred by reducing engineering support funding by 20%. Furthermore, neither AFMC nor AFSPC acknowledged responsibility to the Investigation Team for oversight of engineering functions provided by the 526th ICBM Systems Group for the nuclear missile enterprise.

5.4.2 (U) Insufficient Engineering Engagement in Missile Maintenance Group and Weapons Storage Area Operations:

5.4.2.(a) (U) Multiple instances were identified where the 526th ICBM Systems Group did not provide adequate direction and engineering oversight of 309th Missile Maintenance Group work execution, testing, or material control. For example the 526th ICBM Systems Group:

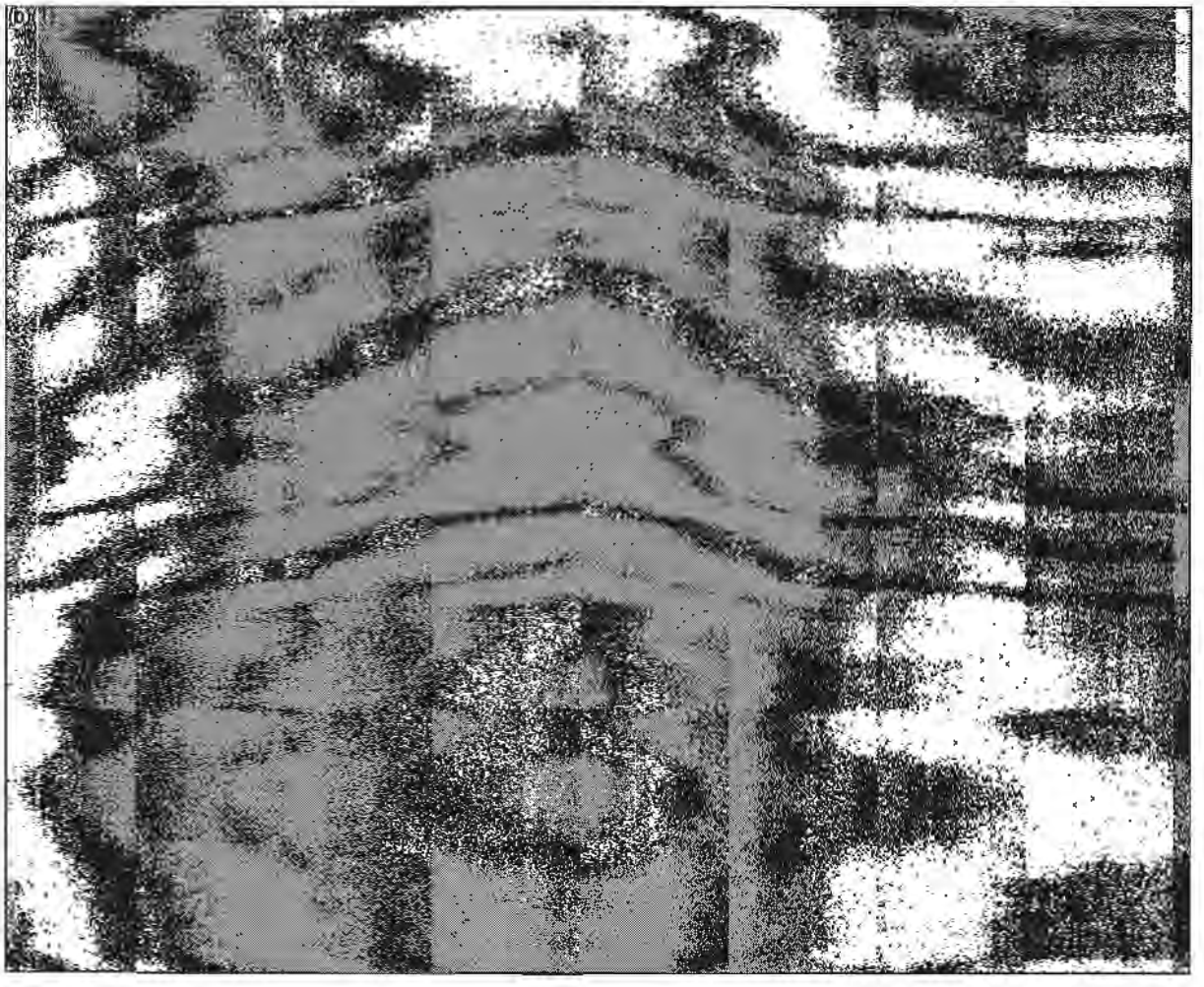
Section 5 – Findings (U)



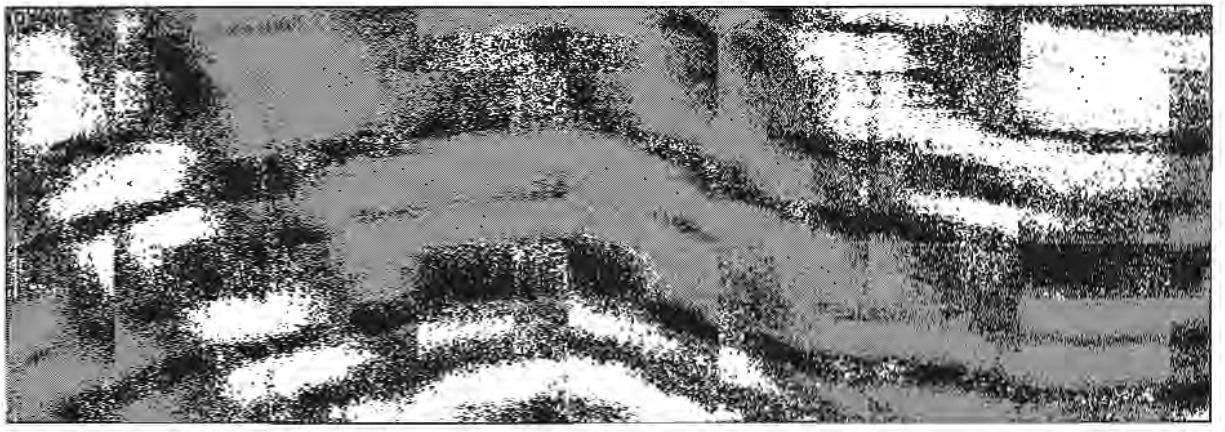
5.4.2.(a).(3) (U) Did not provide an upgrade or maintenance plan for degraded and increasingly malfunctioning test and support equipment; and

5.4.2.(a).(4) (U) Did not identify deficient material controls in the 309th Missile Maintenance Group.

(S) The aforementioned lack of engineering oversight resulted in degraded standards and [redacted] More detailed observations are included in Appendix (H).

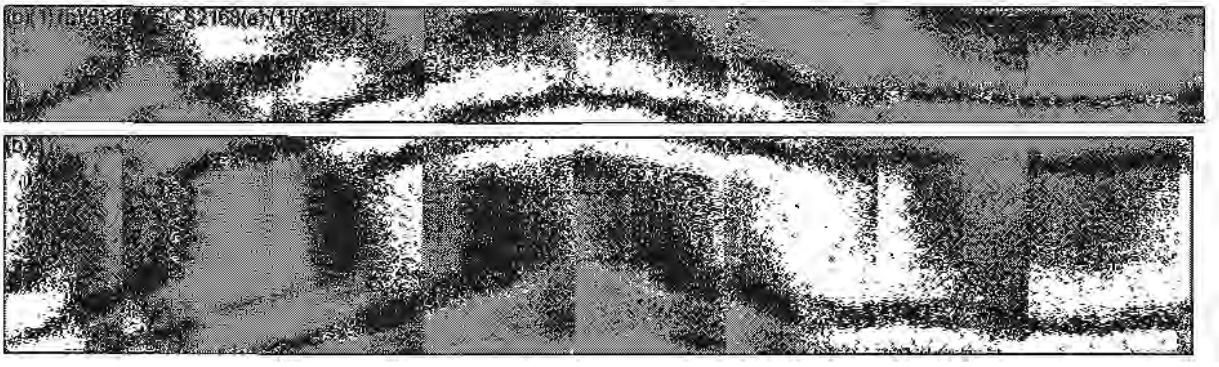


Section 5 – Findings (U)



Section 5 – Findings (U)

5.4.6.(a) (U) Did not address each aspect of the critical component definition;



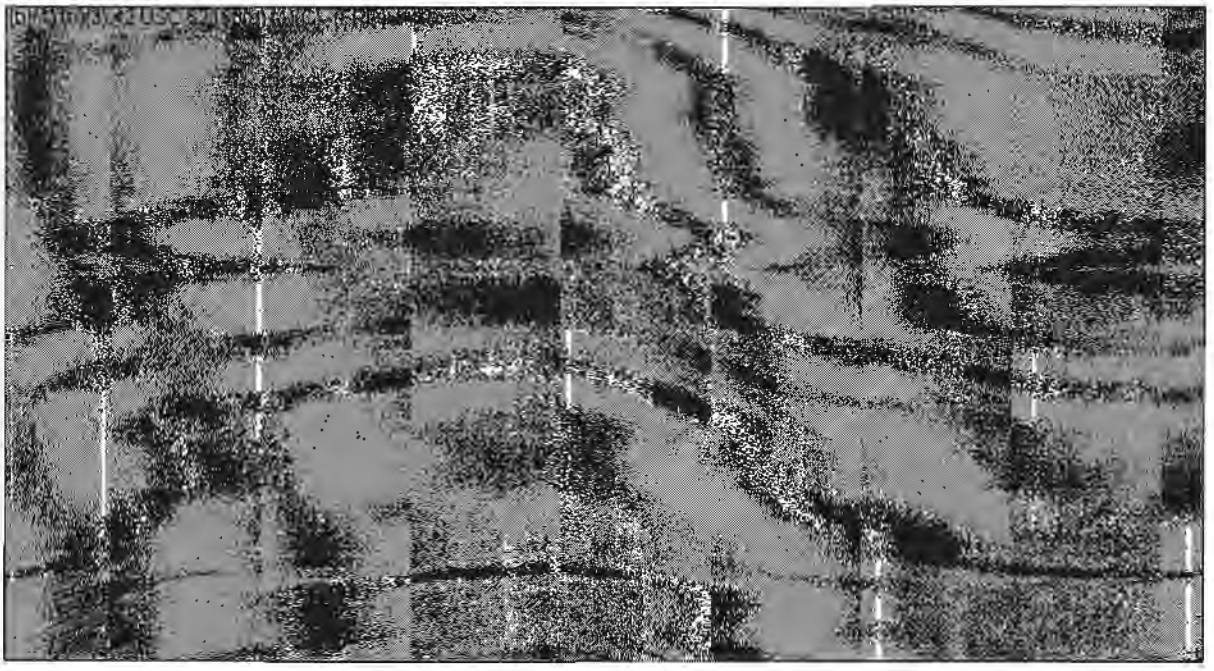
5.4.6.(d) (U) Did not identify the relationship of the assessments to the quantitative requirements and evaluation criteria;

5.4.6.(f) (U) Did not document concurrence or non-concurrence by the agencies represented on the Nuclear Weapons Systems Safety Group, which

[6] Critical components are defined by AFI 91-101 (Air Force Nuclear Weapons Surety Program) as a "component of a nuclear weapon system that if bypassed, activated, or tampered with, could result in or contribute to deliberate or inadvertent authorizing, pre-arming, arming, or launching of a combat delivery vehicle carrying a nuclear weapon, or the targeting of a nuclear weapon to other than its planned target."

Section 5 – Findings (U)

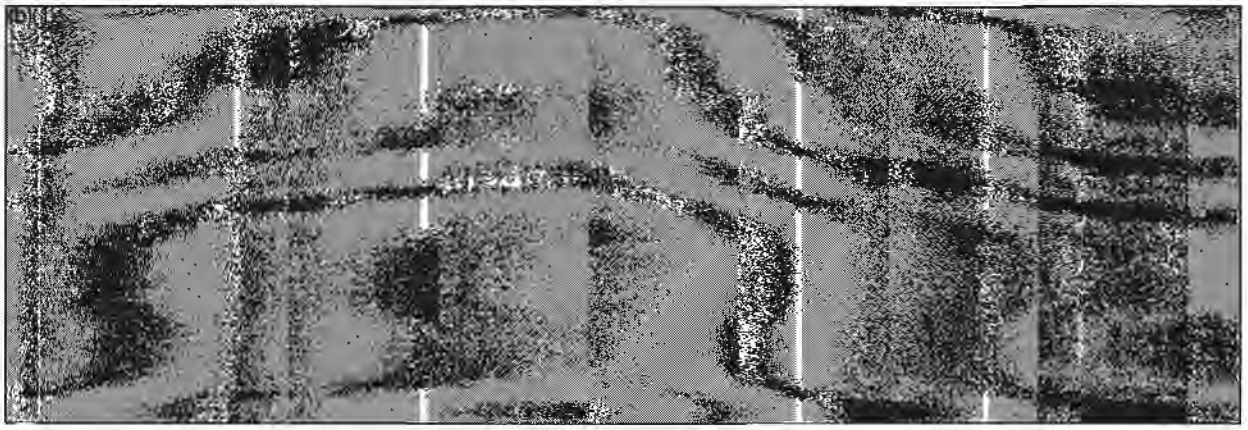
included the Department of Energy, of the decision to discontinue critical component designation for the MK-21 forward section assembly.



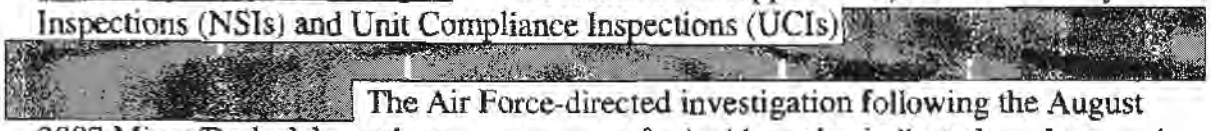
Section 5 – Findings (U)

5.5 (U) Oversight, Inspection, and Internal Audits Have Been Ineffective in Resolving Recurring Deficiencies

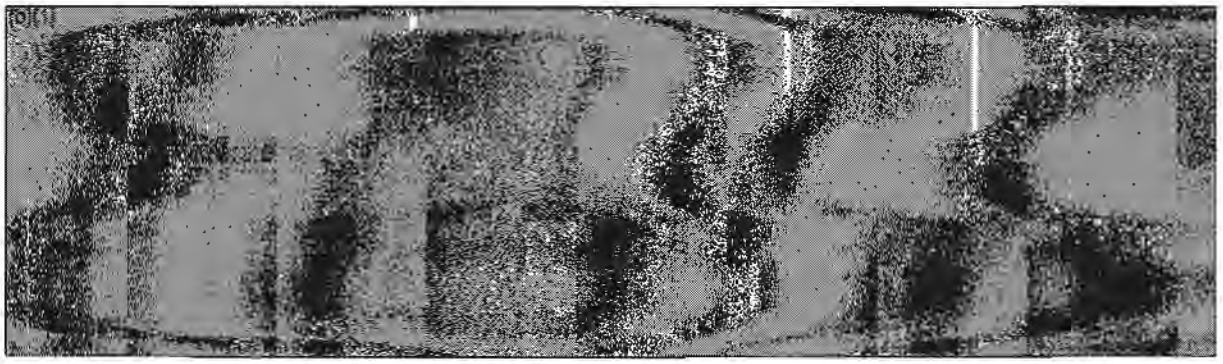
(U) General weaknesses were identified in programs and practices to identify, correct and follow-up on deficiencies associated with the control and handling of sensitive missile components by both the Air Force and the DLA. Weaknesses were also identified in the oversight and conduct of quality assurance programs associated with the maintenance and repair of the MK-12 forward section assemblies completed by the depot maintenance facility and by the ICBM operational wings. Specifically:



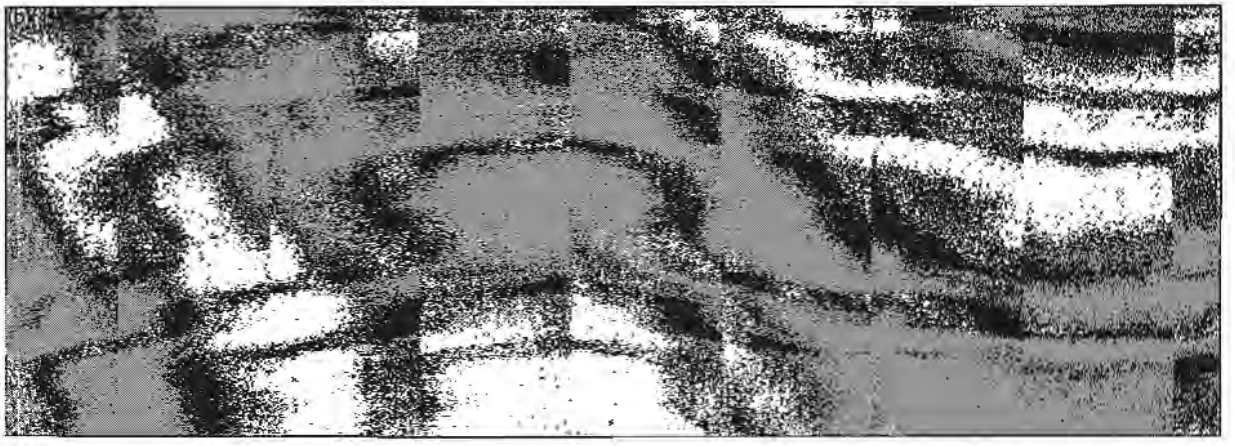
5.5.2 (C) Ineffective Follow-up by the Air Force of Actions Taken for Previously Identified Problems: As documented in Appendix (I), Nuclear Surety Inspections (NSIs) and Unit Compliance Inspections (UCIs)



The Air Force-directed investigation following the August 2007 Minot/Barksdale nuclear weapons transfer incident also indicated weaknesses in these areas. As documented in Appendix (G) and Appendix (H), the Investigation Team identified problems similar to those identified during Air Force inspections. These recurring problems indicate that the actions taken have not resulted in the identification of the actual root causes and corrective actions needed to implement sustained improvement in the handling and control of sensitive missile components associated with nuclear weapons.



Section 5 – Findings (U)



5.5.4 (U) Weaknesses in the Analysis and Response to Audit Findings by DLA are Impacting Improvements in Supply Chain Execution: As documented in Appendix (G), DDHU and DLA analyses of deficiencies (identified by the Air Force Audit Agency, DOD IG, and internal Defense Distribution Center Security Assist Visits) did not result in the identification of systemic problems demonstrated in the supply chain. Consequently, effective corrective actions have not been implemented to prevent recurrence. For example, the Investigation Team identified recurring weaknesses in the use of SDRs and receipt processing.

5.5.5 (U) Weaknesses in Continuing Government Activity[7] (CGA) Oversight of DDHU Warehouse Operations: As documented in Appendix (G), CGA oversight of EG&G was not adequate to identify systemic problems and did not effectively trend findings to drive process improvement. For example,

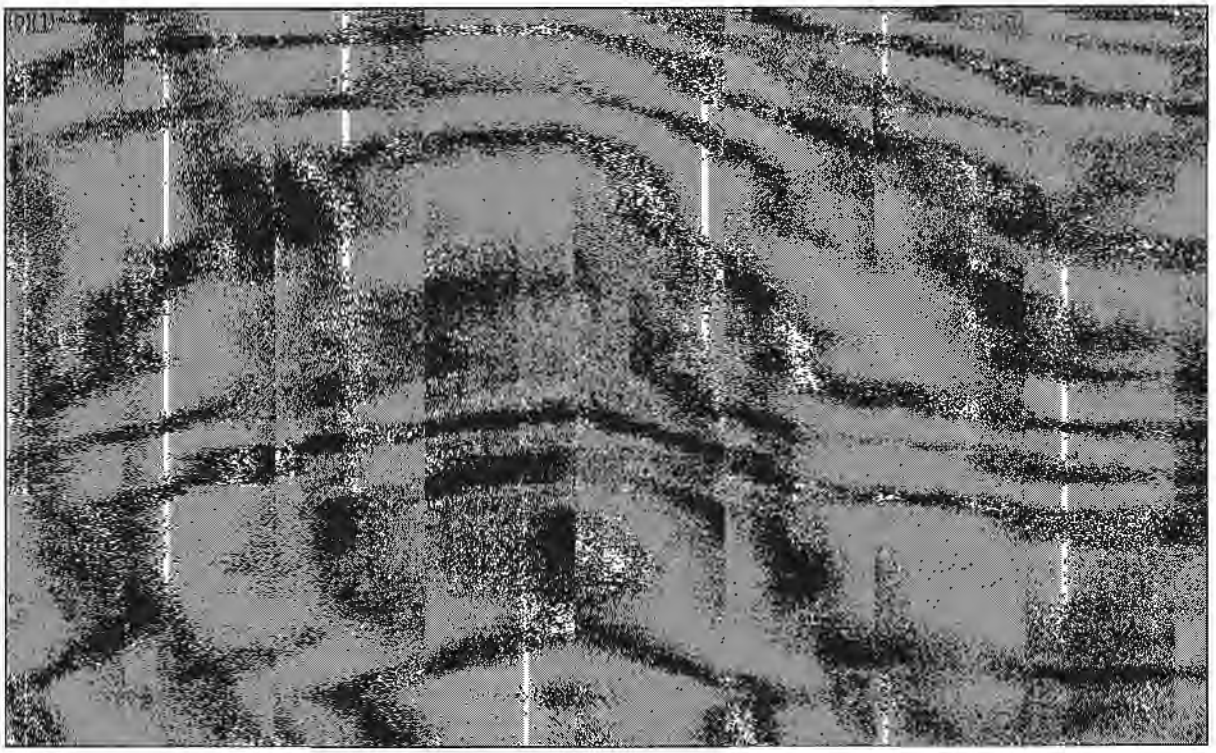
(b)(2)

5.5.6 (U) Weaknesses in DDHU Contractor (EG&G) Quality Assurance: The review of DDHU quality assurance programs, documented in Appendix (G), identified that EG&G quality inspectors had not actively reviewed in-process operations (with the exception of material packaging). For example,

(b)(2)

[7] A Continuing Government Activity is a government element that provides surveillance and monitoring of depot operating contractors.

Section 5 – Findings (U)



5.5.8 (U) Quality Assurance Efforts have been Ineffective in Addressing Longstanding Problems: The routine quality assurance reviews of in-process work and command quality assurance inspections, required by AFI 21-101 and further detailed in Appendix (H), have not enabled corrective actions to fix identified problems and prevent recurring deficiencies.

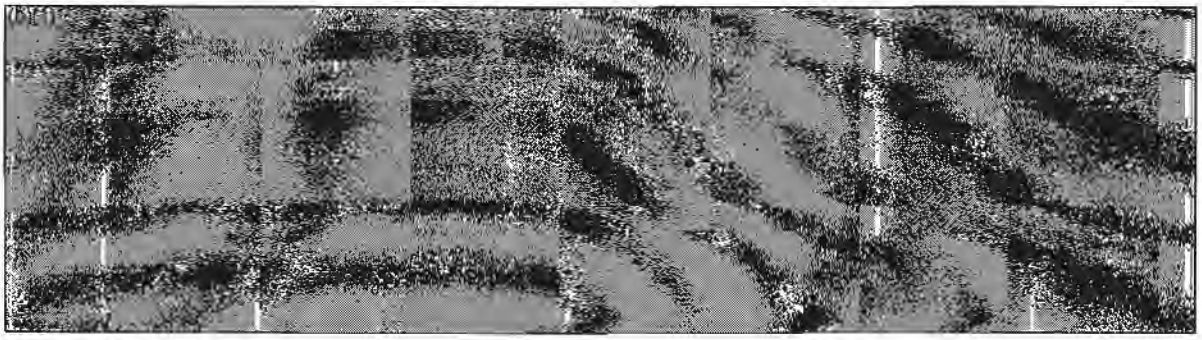
5.5.9 (U) Weaknesses in the Execution and Oversight of WSA Intrinsic Radiation Safety Program: As detailed in Appendix (H), during review of material control and work execution within the WSAs at F.E. Warren AFB, Minot AFB, and Malmstrom AFB, knowledge and performance weaknesses were observed in several aspects of applicable Radiation Safety Programs. Air Force documentation was inadequate to demonstrate that the current personnel and area radiation exposure monitoring practices are sufficient to ensure occupational radiation exposure is less than Air Force requirements for radiation exposure monitoring and maintained as low as reasonably achievable. No evidence of recent oversight of this program by authorities, either external or internal, was found.

Section 5 – Findings (U)

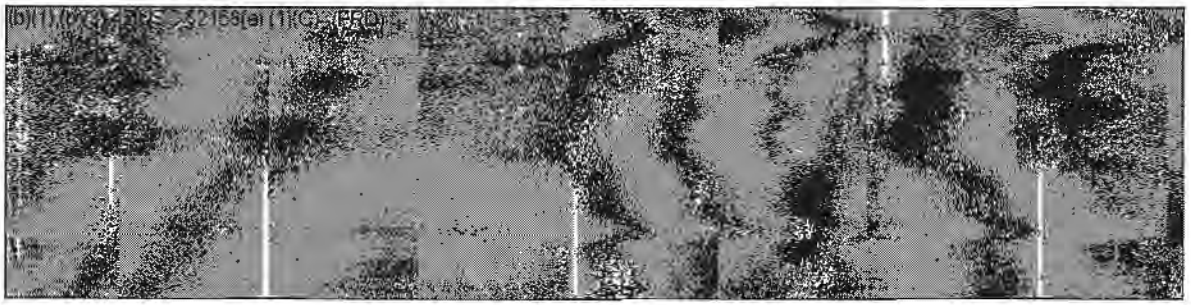
5.6 (U) The ICBM Communities, including Maintenance, Engineering, Operations, and Logistics Organizations, Have a Poorly Developed Self-Assessment Culture

(U) The number of recurring deficiencies, identified by the Investigation Team as well as other authorities, indicates that a self-assessment culture of critically examining performance and working aggressively to resolve problems was not achieved by the ICBM community. Additionally, a formal and disciplined process for effective causal analysis and correction of systemic issues was not well developed. Such a process is critical to preventing recurring and more serious events such as the August 2007 Minot/Barksdale nuclear weapons transfer and the mis-shipment to Taiwan. Detailed observations and discussions are provided in Appendix (H).

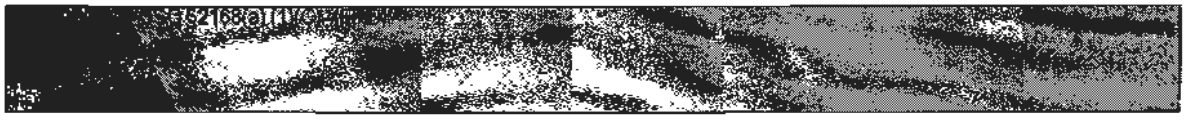
5.6.1 (U) Ineffective Resolution of Longstanding Problems: The investigation identified uncorrected deficiencies previously noted in inspections and reviews, similar in many instances to the findings of this investigation, which have not been resolved. Examples include the following:



5.6.1.(b) (U) Numerous reviews from 2002 to the present conducted by the AFAA, the DOD IG, and AFMC IG have identified inventory control deficiencies at air logistics centers and defense distribution depots. Deficiencies included ineffective procedures for resolving unconfirmed shipments, failing to open and inspect shipping containers as required, failing to submit required SDRs, and inadequate integrated material manager knowledge of the Reparable Item Movement Control System.



Section 5 – Findings (U)



5.6.2 (U) Ineffective Causal Analysis and Correction:

5.6.2.(a) (U) The Air Force ICBM community has accepted an excessive number of longstanding deficiencies. Effective causal analysis and correction could have helped eliminate longstanding deficiencies and prevent the occurrence of more serious problems.

5.6.2.(b) (U) The Maintenance Standardization and Evaluation Program (MSEP) administered throughout the ICBM maintenance community for reviewing problem trends and discussing corrective actions has several areas requiring improvement:

5.6.2.(b).(1) (U) The 341st Space Wing identified that while significant issues are discussed at monthly performance reviews and unsatisfactory boards, corrective actions are only verbally briefed. No formal critique process is in place to examine underlying causes and document required corrective actions to prevent recurrence of the more significant problems. Such a formal critique process would be a useful method to implement short-term actions to ensure adequate controls are in place to allow work to resume, long-term actions that replace short-term actions to correct the systemic causes of problems, and formal follow up to hold personnel accountable for completing effective corrective actions.

5.6.2.(b).(2) (U) The MSEP allows quality assurance inspectors to provide on-the-spot training to correct problems. Inspectors frequently provided this on-the-spot training for problems, including major problems. However, no documented review existed for identified major problems to examine and correct underlying weaknesses in areas such as supervision, engineering, or training.

5.6.2.(b).(3) (U) The MSEP relies solely on the documented observations of quality assurance personnel to measure the quality of work and maintenance. This method limits ownership and insight that can occur when the individuals responsible for the work assess their performance, determine the underlying causes of problems, and implement solutions.

5.6.2.(b).(4) (U) The MSEP does not require the quality assurance organization to review or follow up on corrective actions. This method misses an opportunity for an independent organization to assess the adequacy of any causal analysis and ensure responsible individuals take proper actions to prevent recurrence of problems.

Section 5 – Findings (U)

5.6.2.(b).(5) (U) Following review of NSIs, UCIs, SAVs, LSET reviews, and ORIs, no evidence was found of corrective actions other than those targeted at the most apparent deficiencies. There appeared to be no attempts at correcting more underlying, root causes.

5.6.2.(c) (U) Effective self-assessment and causal analysis requires active leadership engagement at the working level. During reviews of maintenance, the investigation found little officer engagement with execution of maintenance work. Maintenance work is led almost solely by enlisted personnel, often without any formal or visible supervision of the work by responsible officers.

5.6.3 (U) Sharing of Lessons Learned: During the review, the Investigation Team asked 20th Air Force and Ogden Air Logistics Center to identify specific actions taken at local commands in response to the August 2007 Minot/Barksdale nuclear weapons transfer incident. Lessons learned identified from that incident have not been adequately reviewed and applied. Specifically:

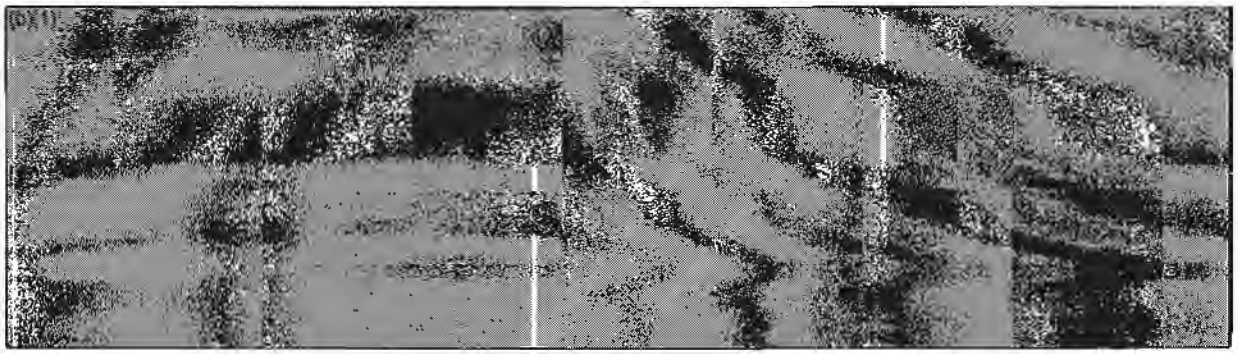
5.6.3.(a) (U) The 526th ICBM Systems Group and the 309th Missile Maintenance Group both indicated that, prior to receiving the Investigation Team's request, they had not been provided any reports on the incident, and therefore had taken no actions.

5.6.3.(b) (U) 20th Air Force indicated that although the report had not been released for general review, specific recommendations from this review were being tracked by the Air Force Nuclear General Officer Steering Group (AFNGOSG). Although 20th Air Force conducted training stand-downs, sent messages and briefed subordinate commands regarding the basic facts surrounding this major incident, it did not require subordinate commands to identify similar weaknesses nor did it require any further formal analysis or response.

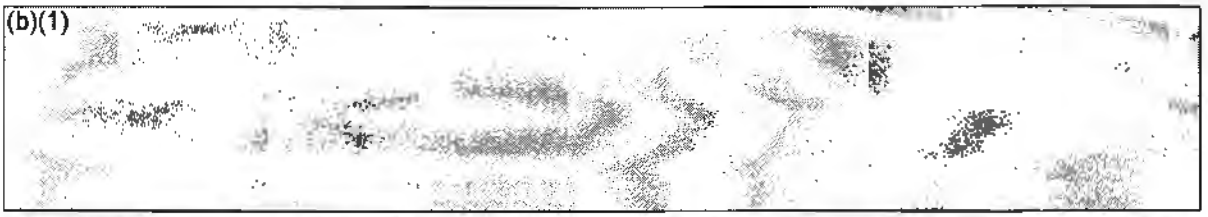
Section 5 – Findings (U)

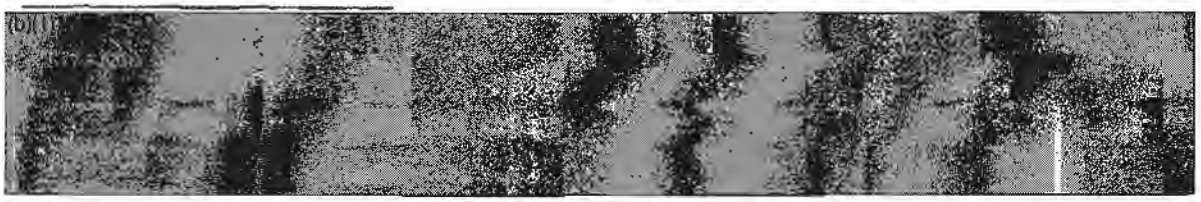
5.7 (U) Changes to Air Force Policies and Processes Degraded the Level of Control for Sensitive Missile Components

(U) Over time, a number of changes to Air Force policies and processes degraded management, execution, and oversight of sensitive missile components. Furthermore, these changes resulted in the elimination of detailed Nuclear Weapons Directorate-managed processes that were established to handle, receive, ship and store material associated with Air Force nuclear weapons.

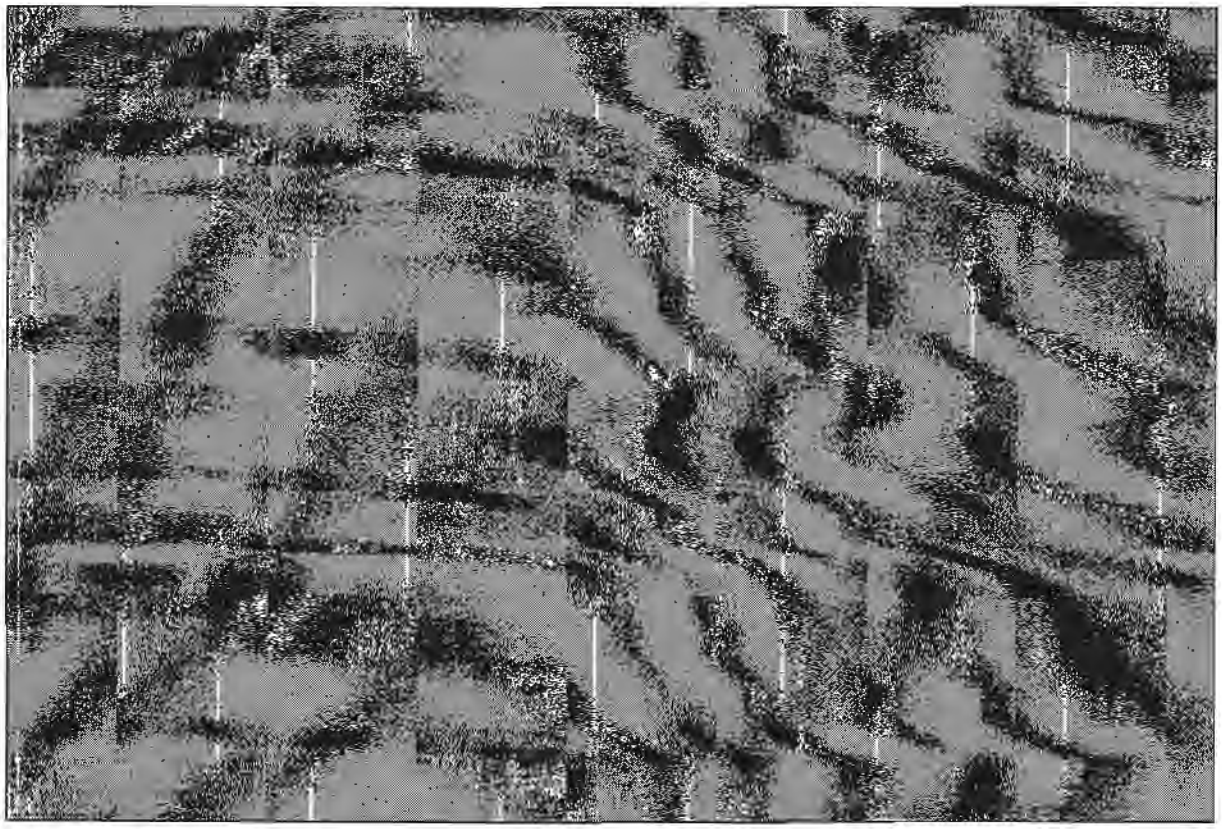


5.7.1.(a) (U) Direct oversight and control of sensitive missile components were eliminated following transfer of responsibilities as a result of the 1995 Base Realignment and Closure (BRAC) Commission recommendation to close the San Antonio – Air Logistics Center (SA-ALC). That transfer moved responsibilities for logistics, maintenance and program management from the Nuclear Weapons Directorate at SA-ALC to Ogden-Air Logistics Center (OO-ALC). The action to close SA-ALC resulted in dispersed material management and maintenance responsibilities, the elimination of dedicated warehouse facilities, and the transfer of technical programs (e.g., aging and surveillance) to individual systems groups. Air Force implementation of the BRAC action eliminated specialized commodity management via a centrally controlled logistics management system (Advanced Nuclear Ordnance Logistics System (ANOLS)), and changed management of the forward section assemblies to a general commodity basis.

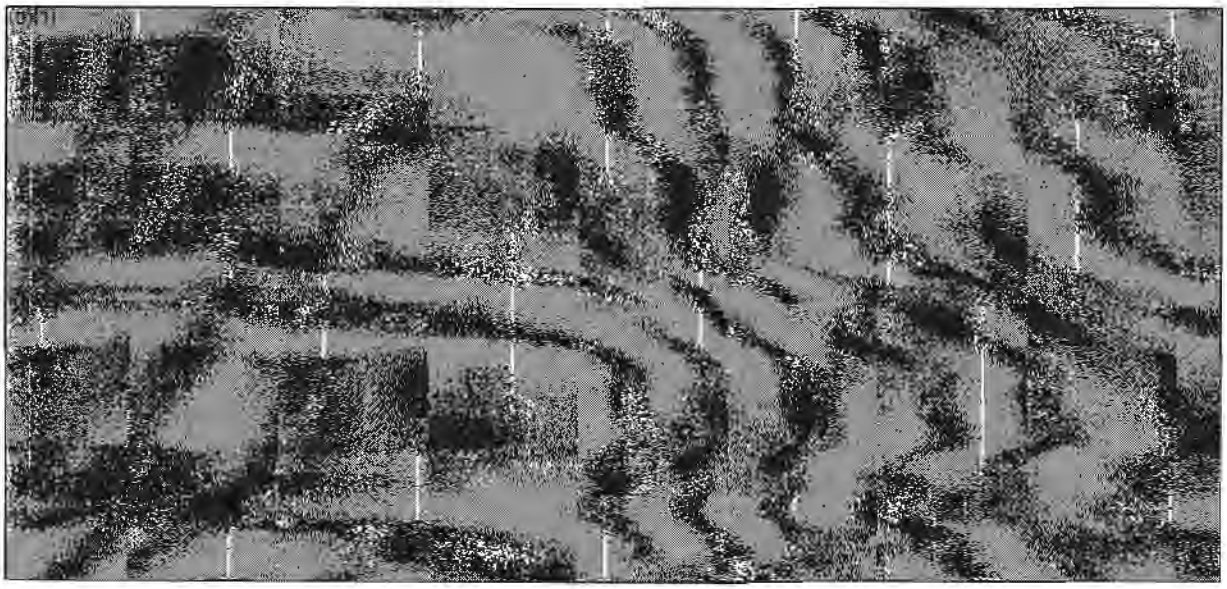




Section 5 – Findings (U)



5.7.2.(b) (U) Local detailed instructions for shipping and receiving nuclear weapons components were cancelled and not replicated at the receiving logistics centers.



Section 6 -SYSTEMIC PROBLEMS (U)

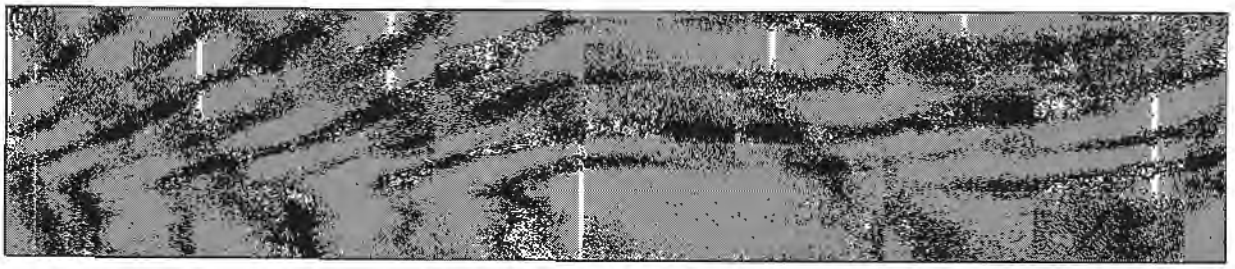
6.1 (U) Dispersed Authority and Responsibility Have Created an Environment Ill-Suited for Setting and Maintaining Standards Necessary for Nuclear Weapons

6.2 (U) Lack of a Culture that Is Internally Driven to Address Systemic Weaknesses Has Resulted in Degraded Performance

6.3 (U) The Declining Trend of Air Force Nuclear Expertise Has Not Been Effectively Addressed

(U) Rather than an isolated occurrence, the shipment of the four forward section assemblies to Taiwan was a symptom of a degradation of the authority, technical competence, and standards of excellence within the nation's ICBM force. Similar to the bomber-specific August 2007 Minot/Barksdale nuclear weapons transfer incident, this incident took place within the larger environment of declining Air Force nuclear mission focus and performance. The investigation identified three systemic problems at the root of this decline.

(U) First, Air Force execution of responsibilities for nuclear weapons and associated systems derived from the Atomic Energy Act (AEA) 42 U.S.C. §2011 et. seq., and implementing directives, is hindered by dispersal of authority and responsibilities among several entities. The absence of a dedicated authority of sufficient stature to exercise overall responsibility and stewardship of Air Force nuclear weapons and for setting and enforcing appropriately rigorous standards across the nuclear weapons enterprise impedes long-term improvement.



(U) Third, although the concern has been recognized for more than a decade, the Air Force has not effectively addressed the decline in nuclear expertise. This was evidenced by a lack of officer engagement during work, at both operational wings and the depot, where many material control and procedural compliance deficiencies were identified. Likewise, some of the officers lacked a technical understanding of this work.

Section 6 – Systemic Problems (U)

6.1. (U) Dispersed Authority and Responsibility Have Created an Environment Ill-Suited for Setting and Maintaining Standards Necessary for Nuclear Weapons

(U) Effective controls and oversight are fundamental to an operational nuclear weapons program that ensures personnel and public safety. These responsibilities derive from the AEA, as implemented by Presidential, Department of Defense (DOD) and Military Department directives, policies, and instructions. They also include required engagement with the Department of Energy (DOE). The dispersed authority within the Air Force for nuclear weapons and their associated systems hinders effective execution of these responsibilities.

(U) One consequence of dispersed authority has been an erosion of the processes and foundation that supported high standards in this community. The investigation identified weaknesses across a broad spectrum of functions needed for proper day-to-day execution of nuclear responsibilities.

(U) The dispersed authority also contributes to a nuclear enterprise that has been reactive in problem-solving after significant incidents occur, and then frequently acted to evaluate and correct only the last symptoms in what was typically a chain of failures that led to the incident. Major problems stem from a large number of uncorrected minor deficiencies – that is, the probability of more significant problems occurring is directly proportional to the number of uncorrected, lower order deficiencies. This lesson learned has been identified as a common root cause in major accidents[9] and is relevant to incidents such as the August 2007 Minot/Barksdale nuclear weapons transfer incident and the shipment of the forward section assemblies to Taiwan. Focused leadership is needed to drive the importance of working on problems while they are small before they grow into larger problems.

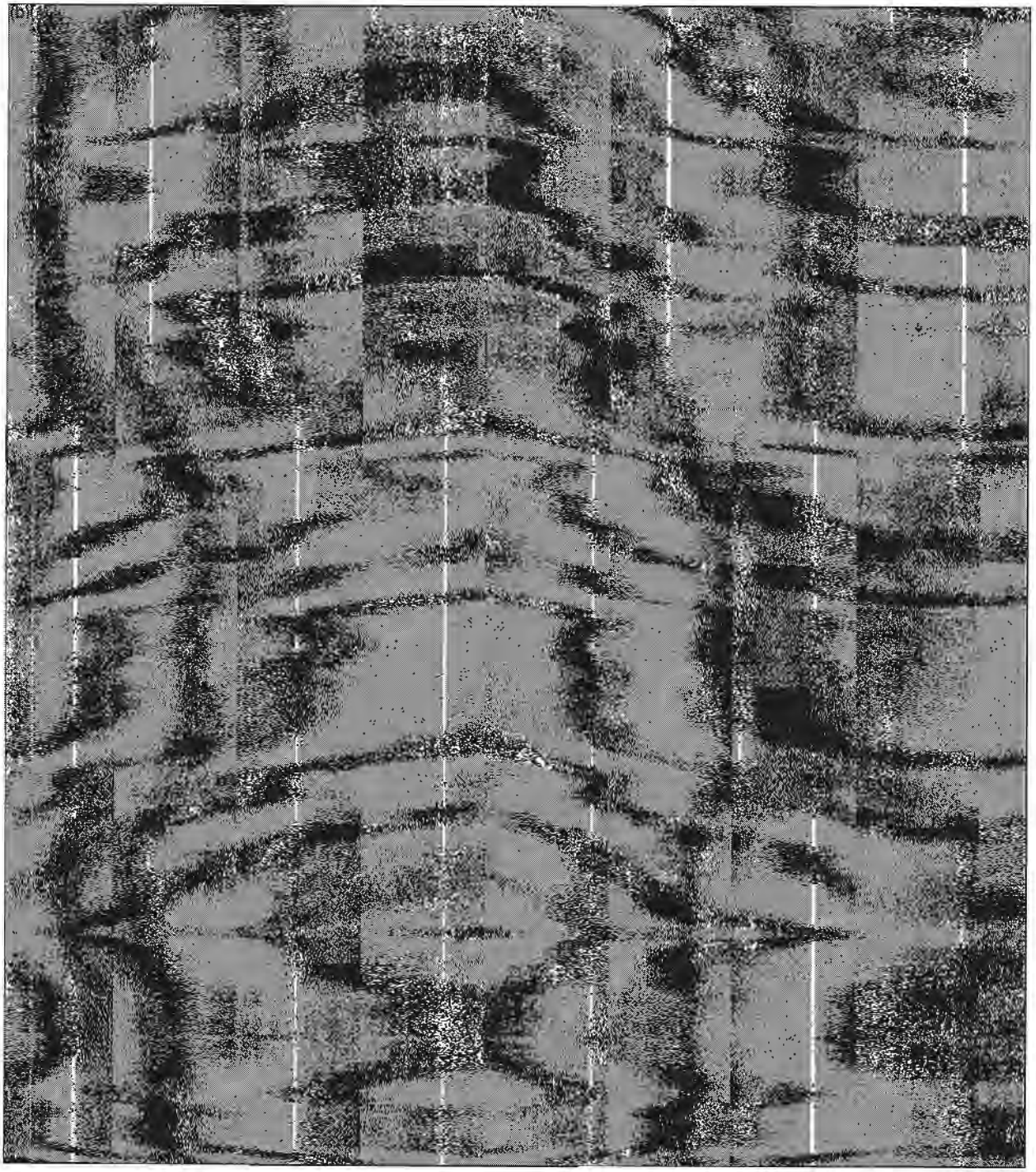
(U) In addition, the following specific issues were identified that highlight dispersed responsibilities and the weaknesses in Air Force oversight:

6.1.1 (U) The lines of authority and responsibility defined in Air Force Policy Directive (AFPD) 91-1 (Nuclear Weapons and Systems Surety) and AFI 91-101 (Air Force Nuclear Weapons Surety Program) are fragmented. For example, AFI 91-101 states that the Assistant Secretary of the Air Force for Acquisition (SAF/AQ) shares the responsibility with AFMC as the focal point for the technical aspects of nuclear surety. Moreover, AFI 91-101 states that Headquarters U.S. Air Force (HQ USAF) establishes program requirements for nuclear weapon surety, and designates HQ USAF as the single point of contact for nuclear weapons logistic matters. AFI 91-101

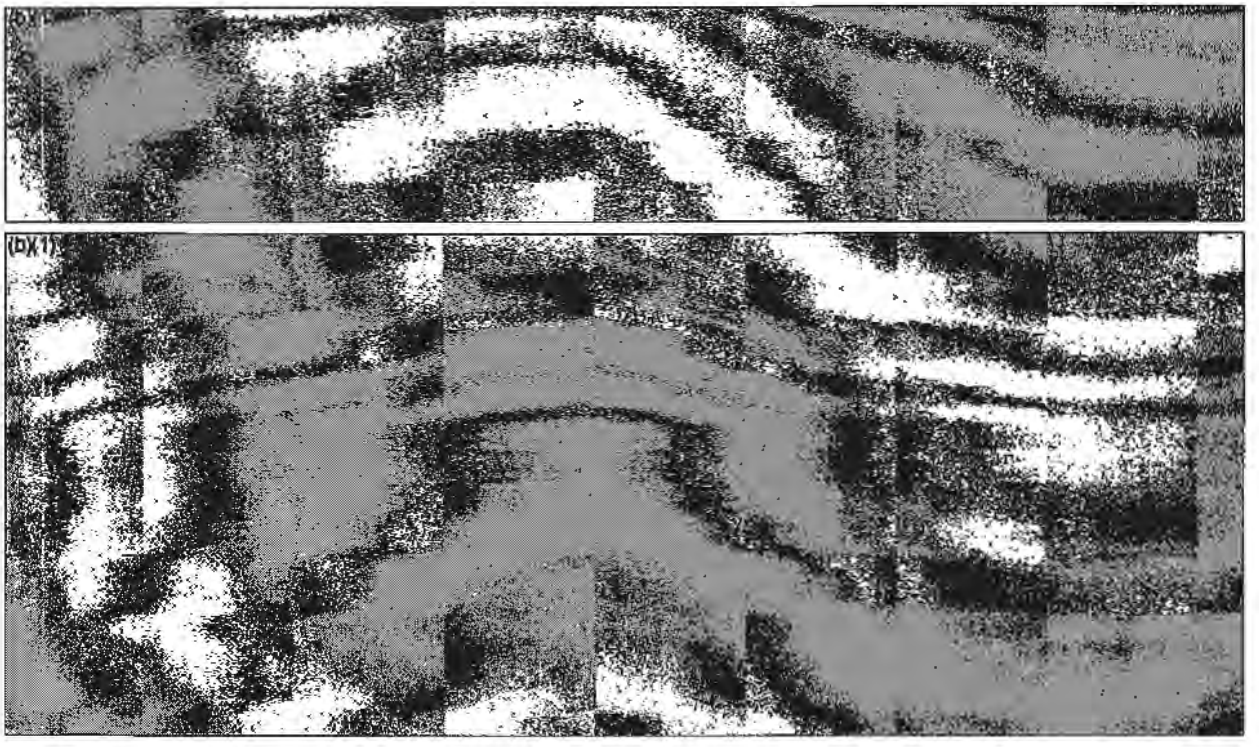
[9] *See for example* Report of the Presidential Commission on the Space Shuttle CHALLENGER Accident, June 6, 1986, and COLUMBIA Accident Investigation Board, August 2003

Section 6 – Systemic Problems (U)

states that the Major Commands (MAJCOMs) are charged with "custody procedures," which it defines as the responsibility for the control of, transfer and movement of, and access to nuclear weapons and components. The defined duties appear to conflict with each other, leading to potential confusion over which entity within the Air Force is ultimately accountable for nuclear surety. This confusion was evident in discussions between the Investigation Team and Air Force leaders.



Section 6 – Systemic Problems (U)



6.1.6 (U) Interviews with responsible leaders at AFMC, AFSPC, and Program Executive Office for Space (PEO/SP) indicate a lack of clarity as to which headquarters organization has oversight responsibility for the ICBM sustainment functions executed by the 526th ICBM Systems Group. The lack of MAJCOM and PEO/SP lifecycle ownership of ICBM systems is symptomatic of the dispersed responsibilities within this community.

6.1.7 (U) The newly established Nuclear Operations, Plans, and Requirements Directorate under HQ USAF A3/5 provides opportunity for better headquarters coordination and advocacy of nuclear matters. However, the Directorate has no direct responsibility or authority for any element of nuclear program execution. The Directorate receives "matrix support" from other headquarters and field commands via informal agreements which are being finalized. According to the Director, however, his office is not the authority for enforcement of the nuclear standard in the Air Force.

6.1.8 (U) In March 2006 the Air Force Nuclear Weapons Center (NWC) was established under AFMC to create a centralized management agency for nuclear ordnance material management and weapons acquisition and sustainment (excluding ICBMs). This organization has since assumed product group management responsibility for assigned nuclear cruise missile systems and bomber support equipment. A transfer of sustainment responsibility for ICBM systems to NWC will occur in summer 2008. These organizational changes do not create a dedicated authority for setting and maintaining Air Force-wide nuclear weapon standards.

Section 6 – Systemic Problems (U)

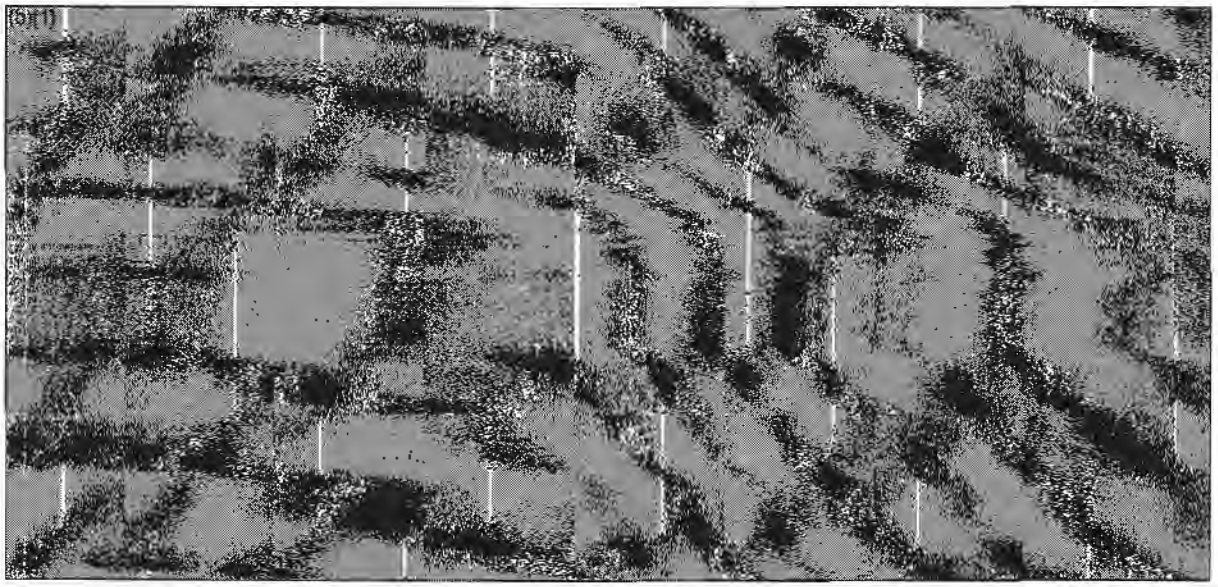
6.1.9 (U) The Air Force Nuclear General Officer Steering Group (AFNGOSG), originally chartered in 1997, is meant to be a "single, cross-functional forum to identify, manage, and resolve current and future issues to ensure the proper sizing, influence, and contribution of the nuclear enterprise." The current focus of the AFNGOSG, however, is a matrix of approximately 130 actions recommended by various investigations and reviews following the August 2007 Minot/Barksdale nuclear weapons transfer incident. The AFNGOSG has no visible means in place to gage the overall health of the nuclear enterprise or to monitor performance trends. Furthermore, the 24-member AFNGOSG operates as a consensus organization, which is, in and of itself, a manifestation of the dispersed authority present in the Air Force nuclear enterprise.

Section 6 – Systemic Problems (U)

6.2. (U) Lack of a Culture that Is Internally Driven to Address Systemic Weaknesses Has Resulted in Degraded Performance

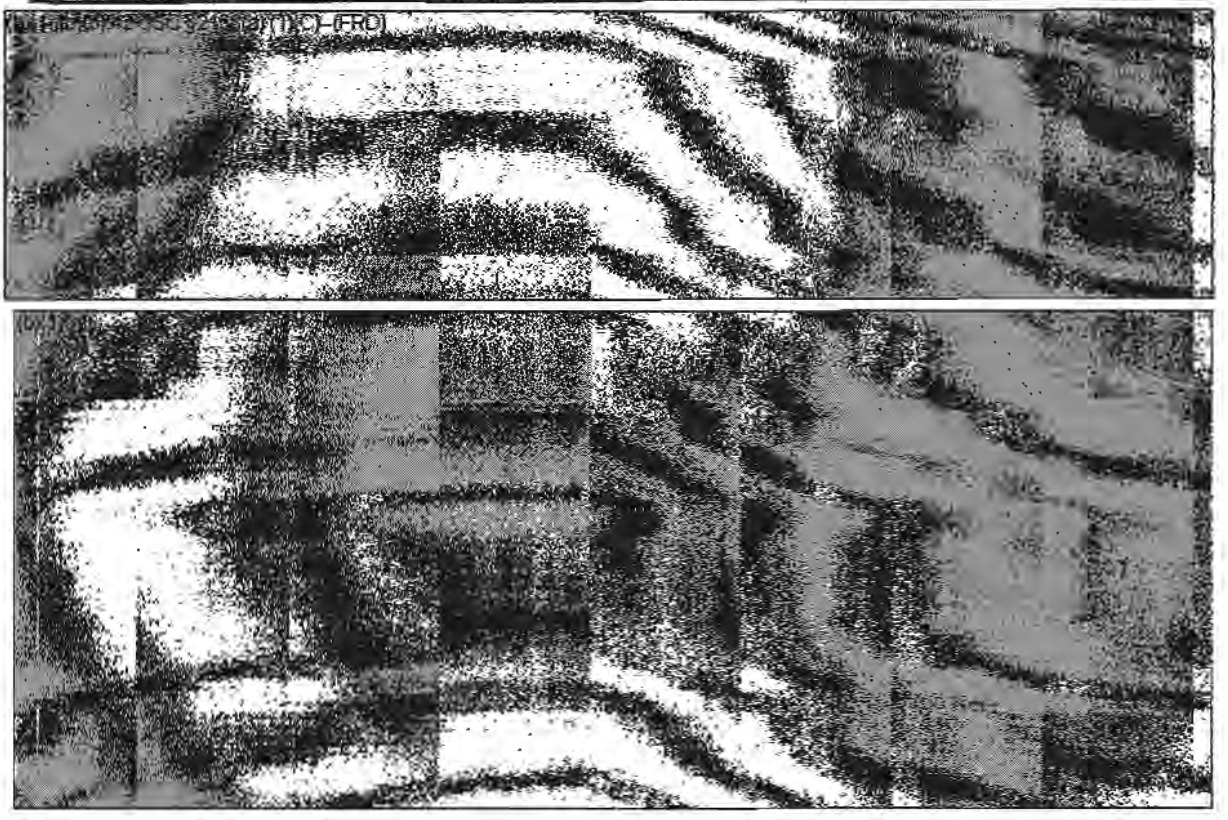
(U) The lack of critical self-assessment and ownership by both individuals and nuclear-related commands, when combined with a nuclear surety inspection process that diminishes ownership at the inspected command, significantly contributed to the overall nuclear performance decline over the last decade. Furthermore, due to the lack of a dedicated authority over all nuclear performance, the current oversight construct does not facilitate identifying and addressing programmatic and systemic weaknesses. Additionally, the current construct does not provide mechanisms for standardizing best practices across different nuclear commands, especially across Air Combat Command and AFSPC activities.

6.2.1 (U) Air Force nuclear related inspections focus on identifying problems at the individual deficiency level, and are categorized as minor, major or critical. Each command responds specifically to each of the identified deficiencies by taking corrective actions for each deficiency. Neither the inspection teams nor the inspected command take into account all of the identified deficiencies and reflect on the command's overall performance to identify any systemic issues that result from analyses of the collective deficiencies. Consequently, only discrete corrective actions are taken for each deficiency.



6.2.3 (U) Air Force nuclear-related inspection processes do not emphasize, or assess, the quality of self-assessment performed by inspected commands. An emphasis on self-assessment would reinforce continuous improvement throughout the nuclear enterprise.

Section 6 – Systemic Problems (U)



Section 6 – Systemic Problems (U)

6.3. (U) **The Declining Trend of Air Force Nuclear Expertise Has Not Been Effectively Addressed**

(U) There have been multiple reports over the last ten years that outlined the erosion of nuclear expertise in the Air Force. Most recently, the February 2008 report of the Air Force Blue Ribbon Review of Nuclear Weapons Policies and Procedures stated that there "are some leaders with little, no, or dated nuclear experience who hold key positions in the USAF nuclear enterprise, including supervisors and enlisted members as well as squadron, group, and wing commanders."

6.3.1 (U) This investigation confirmed that the issues of nuclear experience and technical competency persist. Only half of the 22 commanders and vice commanders (O-6 and above) at the pertinent operational, engineering, and maintenance commands have a background in a missile-related field. Furthermore, the Investigation Team noted that some of these individuals in leadership positions lacked the technical and professional experience necessary to effectively analyze problems and develop sound solutions.

6.3.2 (U) This investigation identified several instances of a lack of wing, group and squadron leadership on the floor of the WSAs where build-up and disassembly of reentry systems occurs. The same observation was made during maintenance operations at the missile maintenance depot. As documented in this report, the Investigation Team identified many deficiencies in material control and work execution during tours of the WSAs and missile maintenance depot which should have been identified by the command's leadership.

6.3.3 (U) The above systemic issues are similar to those identified by other studies performed since 1998 by HQ USAF/XON (now Nuclear Operations, Plans, and Requirements Directorate)[11], Rand[12], and the Air Force Audit Agency[13]. While the latter two studies were focused on sustainment, the 1998 HQ USAF/XON report findings were broader in scope for the Air Force nuclear weapons enterprise, and specifically stated the following:

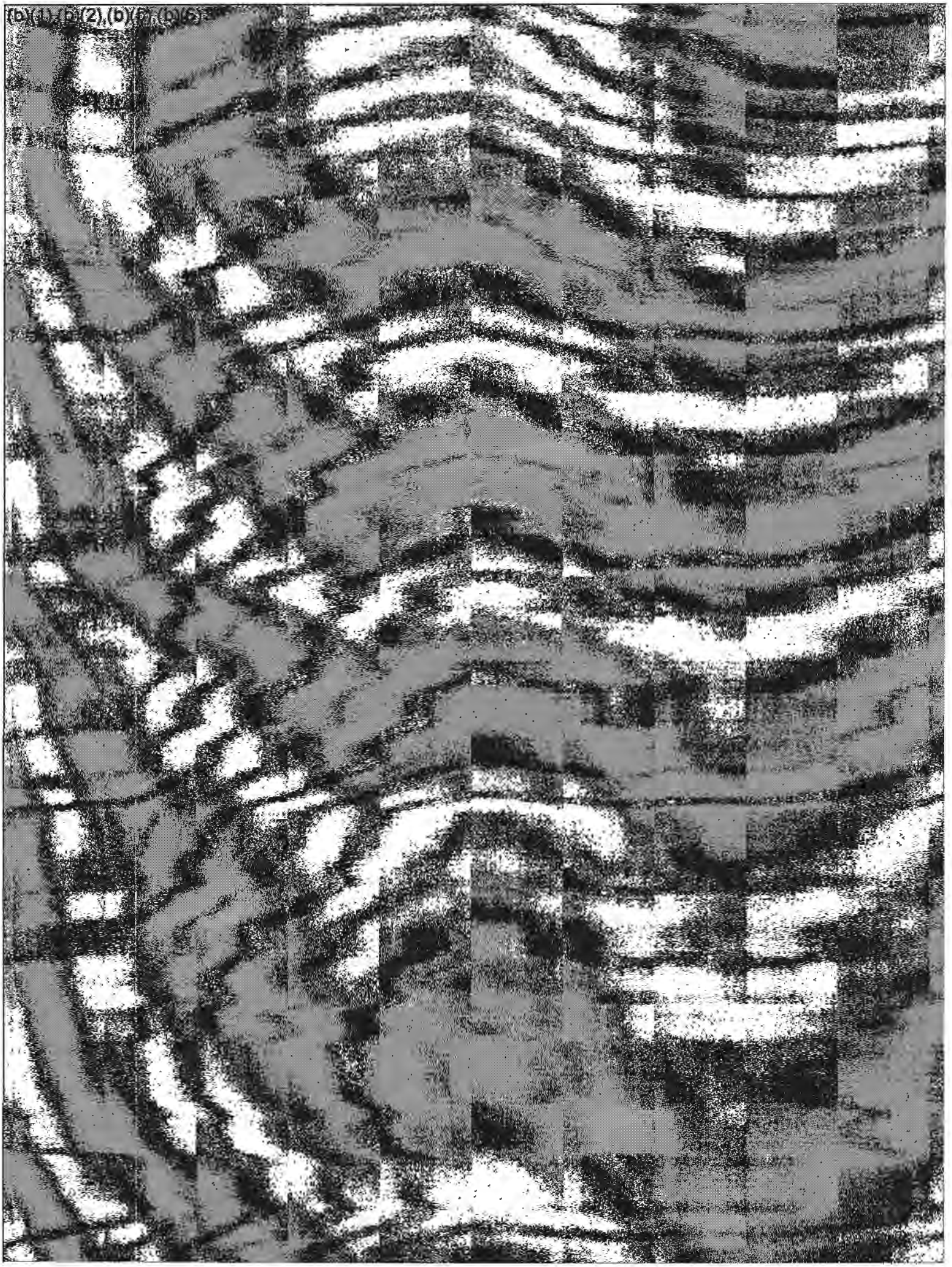
- *(U) The perception of a lack of corporate nuclear focus and leadership (oversight).*

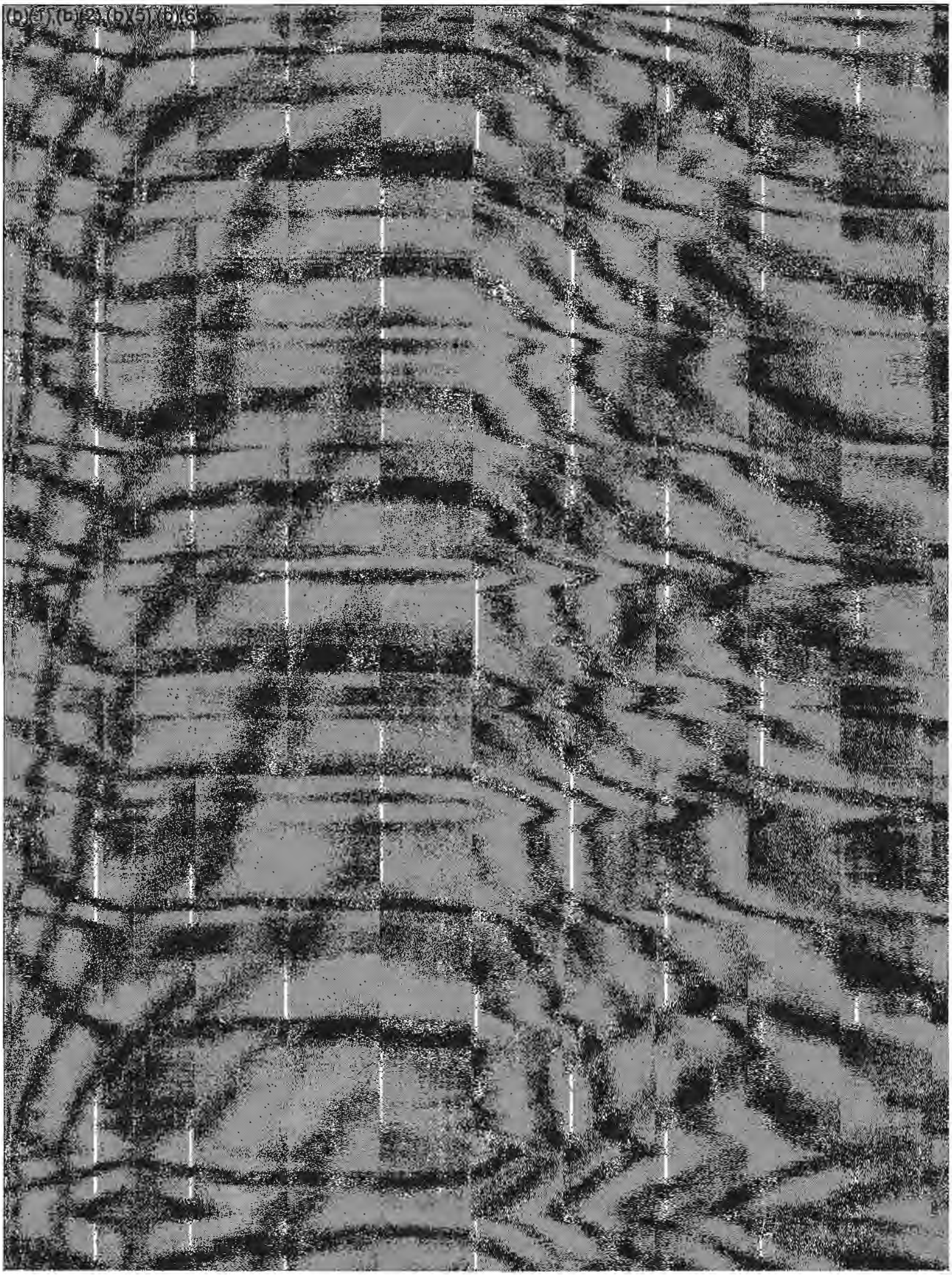
[11] July 1998 Air Force Vice Chief of Staff directed Study of Institutional Support to Air Force Nuclear Units, conducted by HQ USAF/XON (Director of Nuclear and Counterproliferation).
[12] September 2004 Rand Study of Nuclear Weapons Sustainment.
[13] Air Force Audit Agency report on Sustainment of Nuclear Assets, Report F2005-0006-FD3000 of 14 July 2005.

Section 6 – Systemic Problems (U)

- *(U) A shrinking number of qualified and experienced personnel to fill key nuclear requirements (experience).*
- *(U) Resource shortfalls for equipment maintenance, training, security, and technical orders (equipment, training).*
- *(U) Insufficient, and at times, conflicting policy and procedural guidance for a community that has "zero error" standards (guidance).*
- *(U) Inadequate measurement and reporting of nuclear health (guidance/oversight).*

6.3.4 (U) The Air Force recently elevated the rank of the chairman of the Air Force Nuclear General Officer Steering Group to Lieutenant General. While a positive step, the officer assigned to this position has little experience in the nuclear enterprise.


(b)(1),(b)(2),(b)(6),(b)(6)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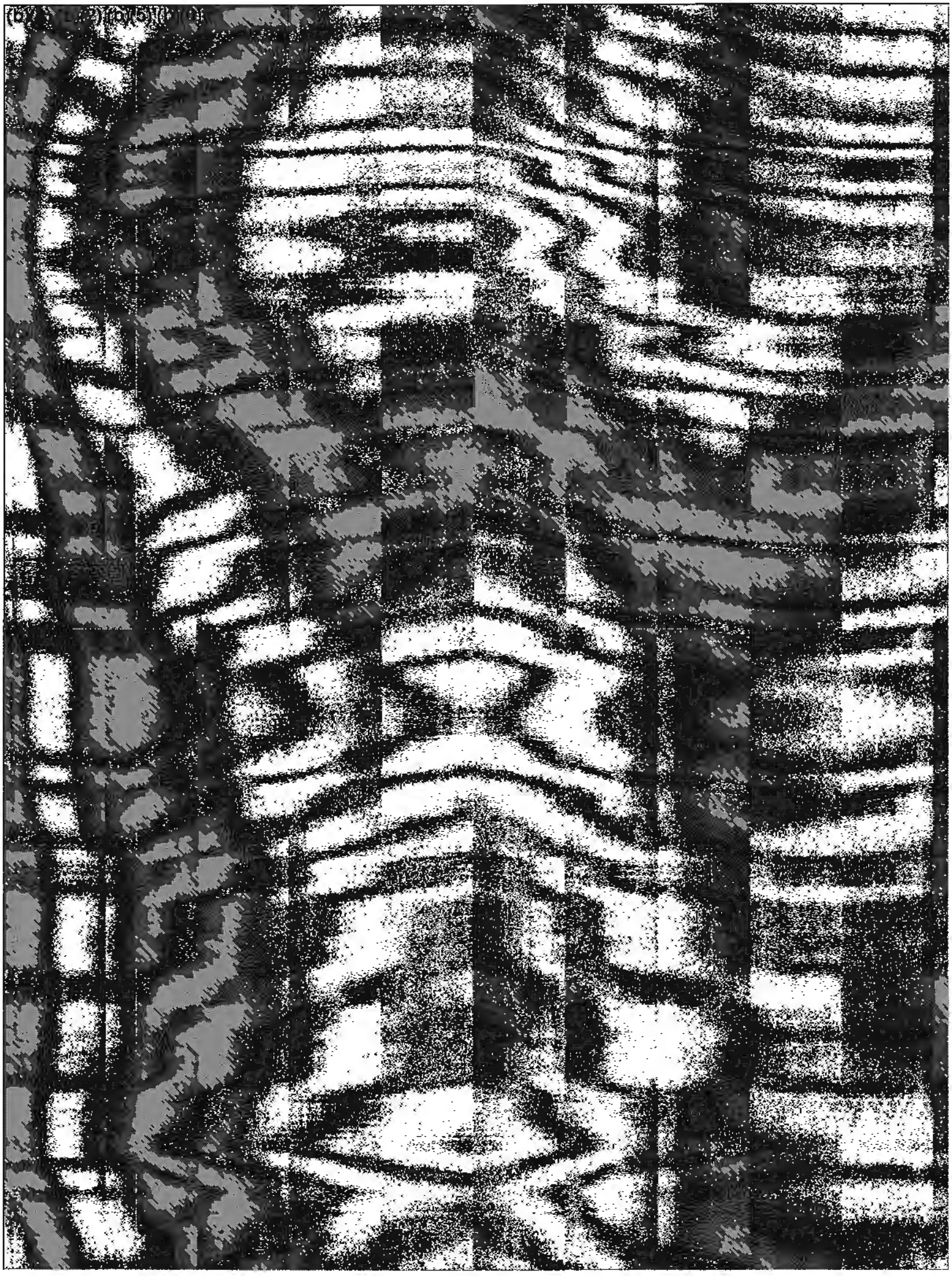
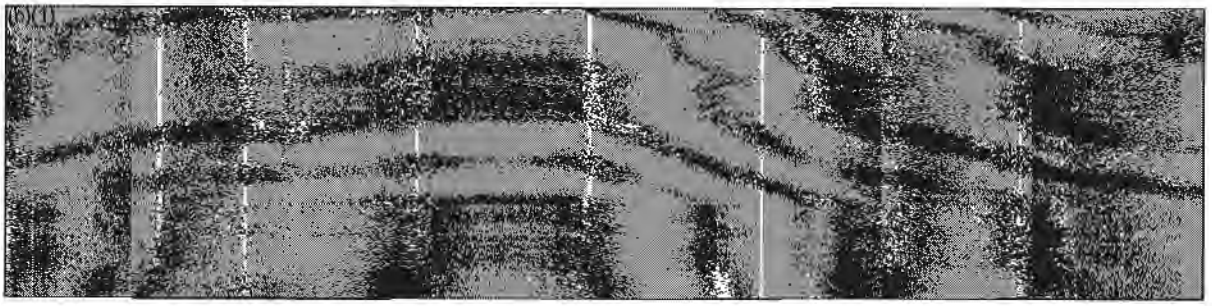


Section 8 - RECOMMENDATIONS (U)

8.1 (U) This section presents recommendations to improve the control of sensitive missile components. Further, based on additional discrepant areas identified during the investigation, recommendations are presented to improve overall performance of the Air Force nuclear enterprise. Accordingly, it is recommended that the Secretary of Defense direct the Air Force and Defense Logistics Agency (DLA) to:

8.1.1 (U) Immediately upgrade knowledge of and compliance with existing technical orders and requirements to restore discipline in the control of sensitive missile components. Furthermore, establish follow-up mechanisms to ensure effectiveness.

(b)(1)



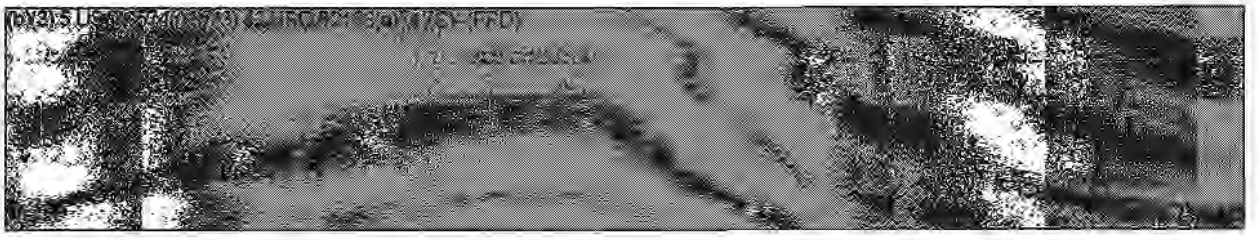
8.1.3 ~~(C)~~ Conduct an in-depth review of supply chain processes for shipping, receiving, marking, storage, and inventory control of classified components. (b)(1)

8.1.4 (U) Establish a dedicated authority for Air Force nuclear weapons with overall responsibility under the Atomic Energy Act and implementing directives. This authority should be of sufficient stature and be responsible for all aspects of Air Force nuclear weapons stewardship. The authority should be solely accountable to the Secretary of the Air Force and the Chief of Staff of the Air Force for nuclear standards across the Air Force.

8.1.5 (U) In parallel with establishing a dedicated authority, the Air Force should review its nuclear organizational structure and correct dispersed lines of responsibility, particularly with respect to ICBM system sustainment.

8.1.6 (U) Establish a nuclear enterprise culture that is internally driven to critically identify, document, and effectively correct systemic weaknesses.

Section 8 – Recommendations (U)



8.1.7.(a) (U) This designation remains appropriate for the current technological threat environment; and

8.1.7.(b) (U) Similar surety determinations are being made in an appropriately formal manner.

8.1.8.(b) (U) Lack of effective engineering checks and balances above the group level;

8.1.8.(d) (U) Adequacy of existing processes for maintaining historical documentation (i.e., comprehensive material history) for nuclear missile components; and

8.1.9 (U) Perform a review of the radiation safety programs utilized at the Air Force wings that handle nuclear weapons to determine whether:

8.1.9.(a) (U) Personnel and area radiation monitoring requirements are adequate and being met for current handling configurations;

8.1.9.(b) (U) Training and work practices are adequate for ensuring exposure is as low as reasonably achievable and for properly handling and controlling radiological wastes; and

8.1.9.(c) (U) Routine external and internal inspections and command oversight of the radiation safety program are adequate.

8.1.10 (U) Re-examine the Chief of Staff of the Air Force Recommendation Matrix that resulted from the August 2007 Minot/Barksdale nuclear weapons transfer incident to gain a more thorough understanding of the underlying systemic issues, and revise the actions accordingly. Additionally, methods to assess the long-term effectiveness of the revised actions should be established, including development of both quantitative and qualitative assessment strategies.

8.1.11 (U) Re-assess Air Force and DLA responses to past audits of inventory management. Recurring supply chain process failures and weaknesses identified during this investigation were also identified in previous audits, indicating that systemic issues need to be more thoroughly understood and comprehensively addressed.

8.1.12 (U) Determine actions necessary to measurably address the declining trend of Air Force nuclear expertise. Numerous reviews over the last decade have highlighted the negative trend, yet little discernable progress has been made. This investigation found cases where individuals in leadership positions lacked the technical and professional experience necessary to effectively analyze problems and develop sound solutions.

8.1.13 (U) Hold leadership accountable for measurable progress in correcting the longstanding systemic problems discussed herein.

8.2 (U) In the course of this investigation, the team obtained for background and general comparison purposes information from the Navy (Strategic Systems Programs) on how it controls sensitive nuclear weapon components. While useful for perspective, it was not within the scope of the investigation to conduct an in-depth review or draw any conclusions. Consequently, it is recommended that the Secretary of Defense provide this report and task the Navy to review the findings and recommendations contained herein for any that might be applicable.

Section 9 - APPENDICES (U)

Appendix A	SECDEF Memo of 25 March 2008 (U)
Appendix B	Initial Assessment ~~(S//FRD)~~
Appendix C	Organizations Visited (U)
Appendix D	Investigation Team (U)
Appendix E	Command Descriptions (U)
Appendix F	Executive Summary, U.S. Naval Criminal Investigative Report Control Number 26MAR08-DCWA-0114-5FNA of 9 May 2008 ~~(S//NF)~~
Appendix G	Ineffective Supply Chain Management ~~(S//FRD)~~
Appendix H	Maintenance and Quality Assurance Practices and Programs ~~(S//FRD)~~
Appendix I	Weaknesses in the Conduct, Response, and Oversight of Command Inspections Involving Nuclear-Related Operations ~~(C)~~
Appendix J	History of Material Controls Associated With the Management of MK-12 Forward Section Assemblies ~~(S//FRD)~~
Appendix K	Glossary of Acronyms (U)

APPENDIX B

INITIAL ASSESSMENT

14 April 2008

Appendix B: Initial Assessment

Initial Assessment

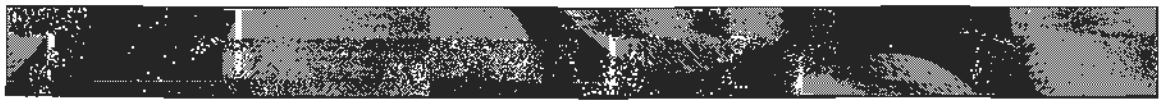
1. (U) Background: On 25 March 2008, the Secretary of Defense appointed ADM Kirkland H. Donald, USN, to conduct an investigation into the facts and circumstances surrounding the accountability for, and shipment of, sensitive missile components provided to the Government of Taiwan on or around August 2006. This report is an initial assessment of the ongoing investigation.

2. (U) Summary

a. (U) Description of Event: On 1 August 2006, Defense Distribution Depot Hill, Utah (DDHU) initiated a shipment to Taiwan of four MK-12 Forward Section Reentry Vehicle Assemblies (forward section assemblies) which had been misidentified, to fill a foreign military sales order for helicopter batteries. The MK-12 Reentry Vehicle is used on the Minuteman III ICBM. [redacted] The operational status of the four forward section assemblies shipped to Taiwan was Serviceable or Condition A (Issuable Without Qualification). Three forward section assemblies arrived in Taiwan on 25 October 2006 and one arrived on 9 November 2006. The American Institute of Taiwan (AIT) secured the items on 21 March 2008. The forward section assemblies were returned to Hill Air Force Base on 25 March 2008.

b. (U) Initial Causal Assessment

(1) ~~(C)~~ The investigation has identified that the proximate cause of this event is the sole reliance on supply system procedures – for marking, shipping, receiving, and storing classified material – to provide positive control of sensitive missile components.



3. (U) Scope of Investigation

a. (U) Functional Areas Reviewed: The investigation has examined the following functional areas related to the facts and circumstances surrounding the shipment:

(1) (U) DoD and Air Force requirements for control of classified nuclear weapon reentry vehicle components, including maintenance and quality assurance processes associated with these components;

(2) (U) Logistics processes associated with control of classified nuclear weapon reentry vehicle components, including shipping, receiving, marking, storage, and inventory; and

(3) (U) Forensic inspections of the four forward section assemblies and packaging returned from Taiwan and, as control samples, three additional forward section assemblies and packaging that never left U.S. custody.

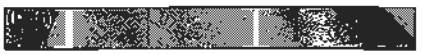
b. (U) Methods of Investigation: The methods of investigation included: site visits to relevant commands; record reviews; interviews of Air Force, Defense Logistics Agency, U.S. Army Security Assistance Command (USASAC), and contractor personnel; observation of work; mock scenarios to replicate reentry vehicle dismantlement and relevant shipping and receiving processes (including electronic information exchanges); and detailed forensic inspections of the forward section assemblies.

c. (U) Organizations Visited: Reviews were conducted at the following sites:

(1) (U) Headquarters, Defense Logistics Agency, Ft. Belvoir (LTG Robert T. Dail, USA)

(2) (U) Defense Logistics Agency, Defense Distribution Depot Hill, Utah (DDHU) 

(3) (U) 20th Air Force, F. E. Warren AFB (Maj Gen Roger W. Burg, USAF)

(4) (U) 90th Space Wing, F. E. Warren AFB 

(5) (U) Ogden Air Logistics Center, Hill AFB (Maj Gen Kathleen D. Close, USAF)

(6) (U) 508th Aerospace Sustainment Wing, Hill AFB 

(7) (U) 309th Missile Maintenance Group, Hill AFB (b)(6)

(b)(6)

(8) (U) 526th ICBM Systems Group, Hill AFB (b)(6)

(b)(6)

(9) (U) Air Force Headquarters Staff, A4/7 Installation, Logistics, Missions Support, Pentagon (Lt Gen Kevin J. Sullivan, USAF)

d. (U) Pertinent Chains of Command

(1) (U) *Defense Logistics Agency*: Defense Distribution Depot Hill Utah (DDHU) at Hill AFB reports to Commander, Defense Distribution Center in New Cumberland, PA (1-star) who reports to HQ DLA, Ft. Belvoir, VA (3-star).

(2) (U) *U.S. Army (Foreign Military Sales for Helicopter Batteries)*: U.S. Army Security Assistance Command (USASAC) New Cumberland, PA reports to USASAC, Ft. Belvoir, VA (1-star) who reports to U.S. Army Materiel Command, Ft. Belvoir, VA (4-star).

(3) (U) *U.S. Air Force (Organize, Train, and Equip)*: At F. E. Warren AFB, 90th Space Wing reports to 20th Air Force (2-star) who reports to Air Force Space Command at Peterson AFB, CO (4-star).

(4) (U) *U.S. Air Force (Logistics and Maintenance)*: At Hill AFB in Ogden, UT, 309th Missile Maintenance Group reports to 309th Maintenance Wing (1-star). 309th Maintenance Wing and 508th Aerospace Sustainment Wing both report to the Ogden Air Logistics Center (2-star) who reports to HQ Air Force Material Command at Wright-Patterson AFB, OH (4-star).

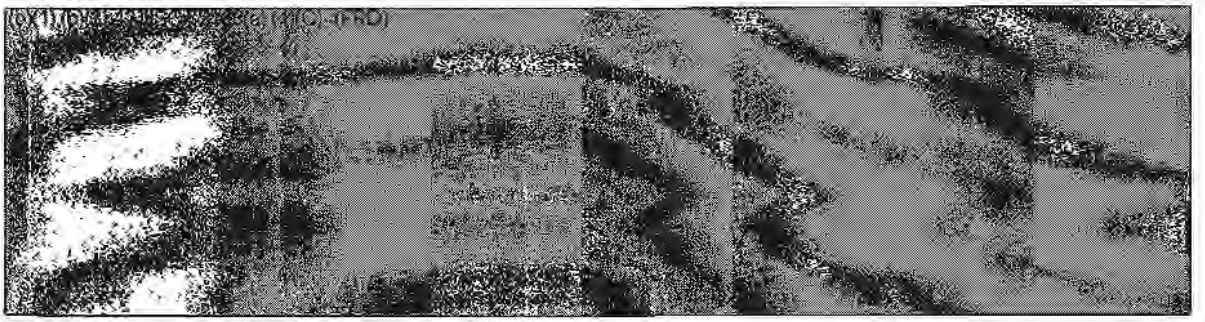
(5) (U) *U.S. Air Force (Technical)*: 526th ICBM Systems Group at Hill AFB reports to Space and Missile Systems Center at Los Angeles AFB, CA (3-star).

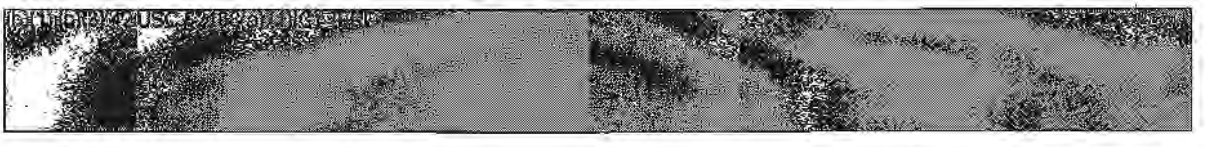
4. (U) Timeline

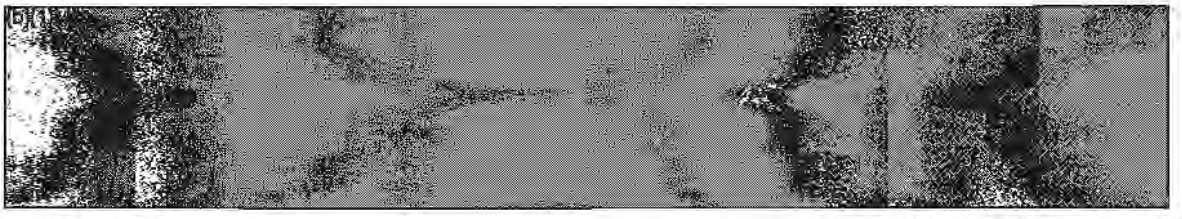
a. (b)(1)

(b)(1) (b)(3) 42 USC 2168(a)(1)(C) (FRD)

Appendix B: Initial Assessment







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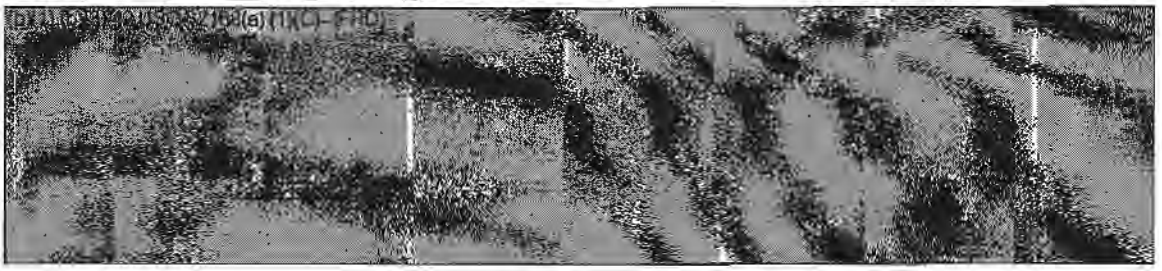
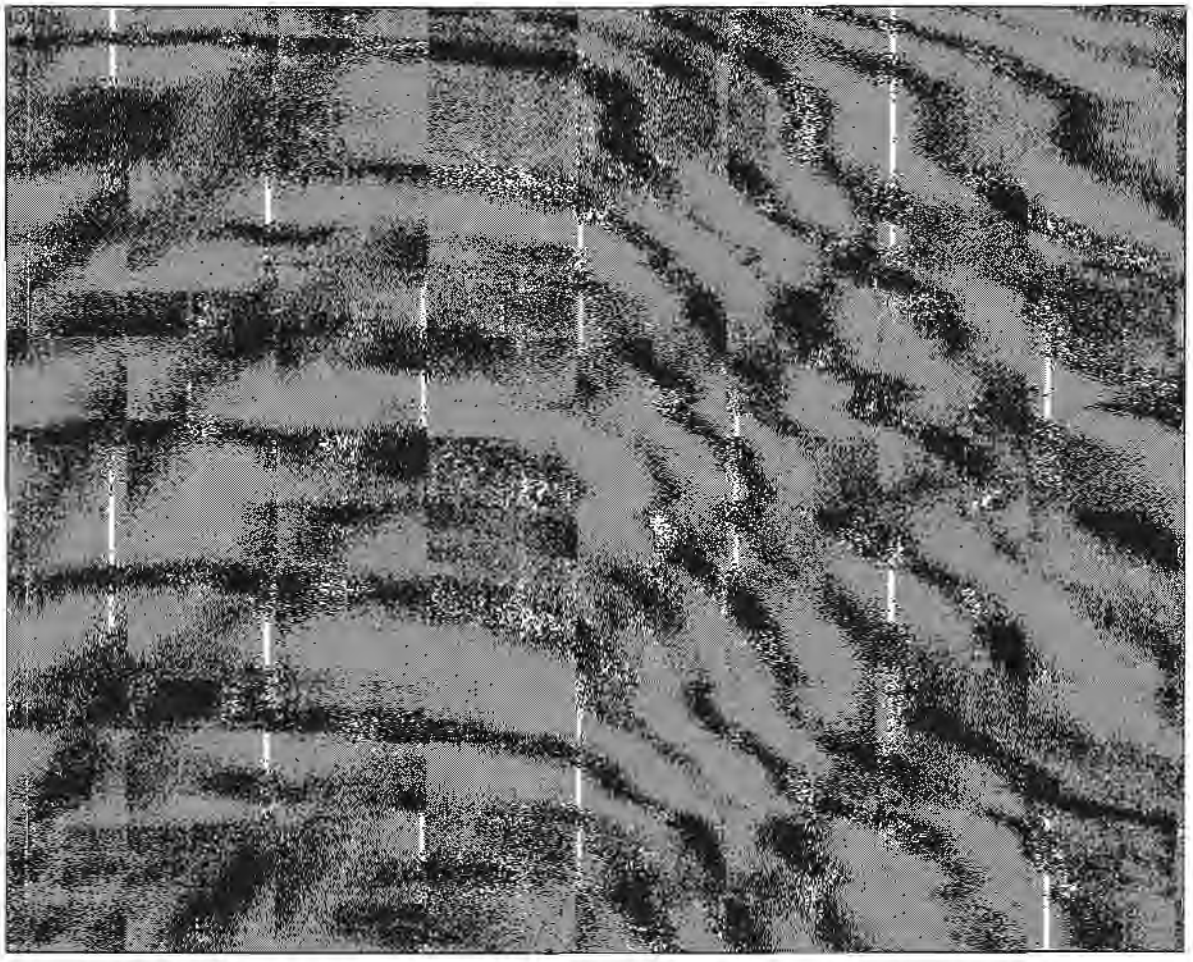
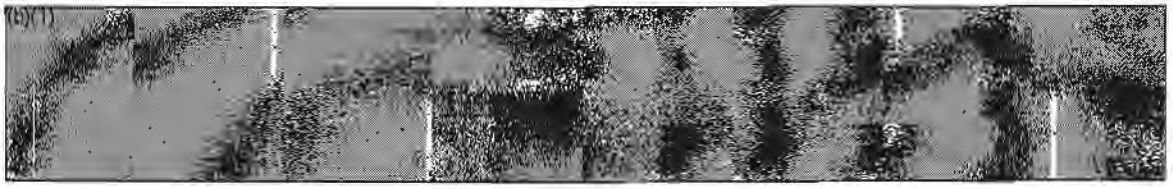


(4) (U) *16 June 2006, DDHU, Hill AFB*: DDHU received a Foreign Military Sales (FMS) requisition for four helicopter batteries, NSN 6140-01-290-6554.



(3) (U) *5 June 2007, USASAC*: USASAC submitted a follow-up WebSDR, the first action since the original 19 January 2007 hardcopy SDR submission.



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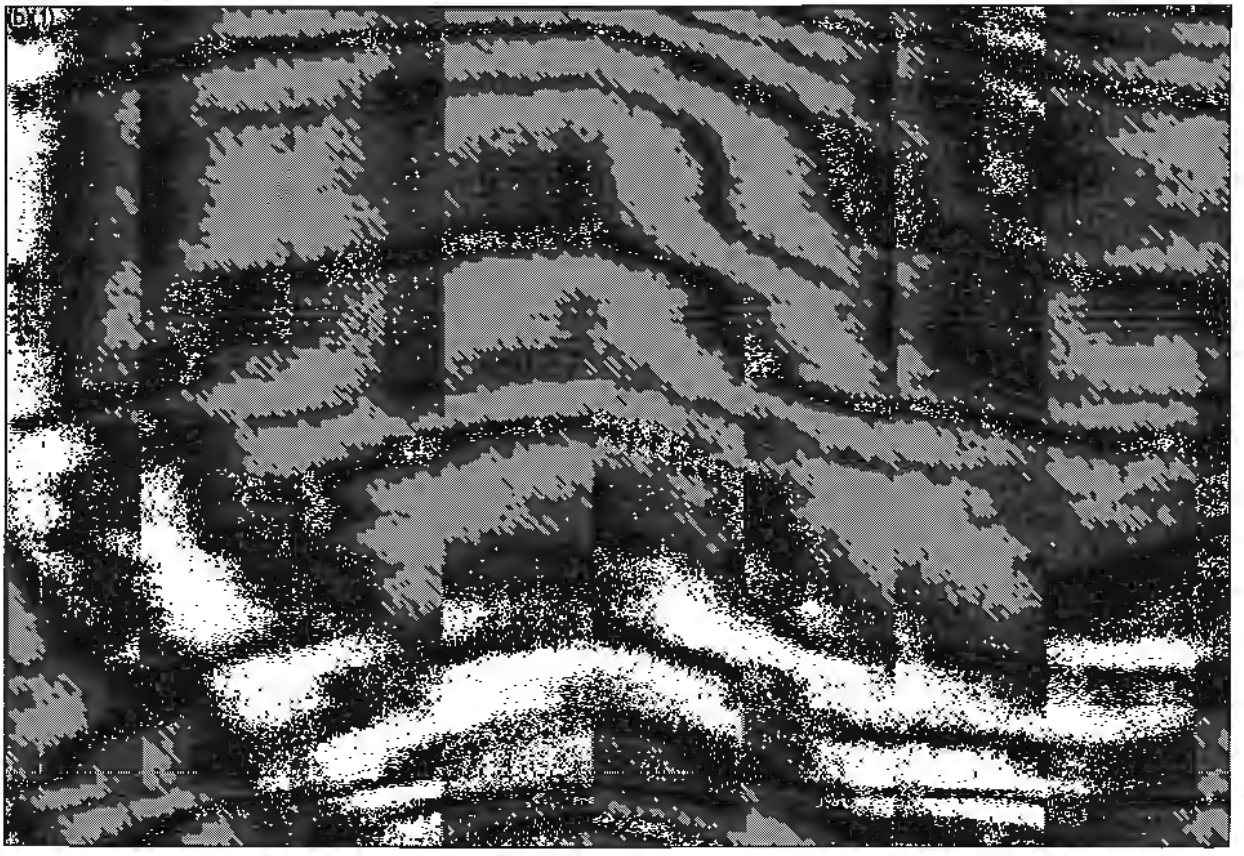
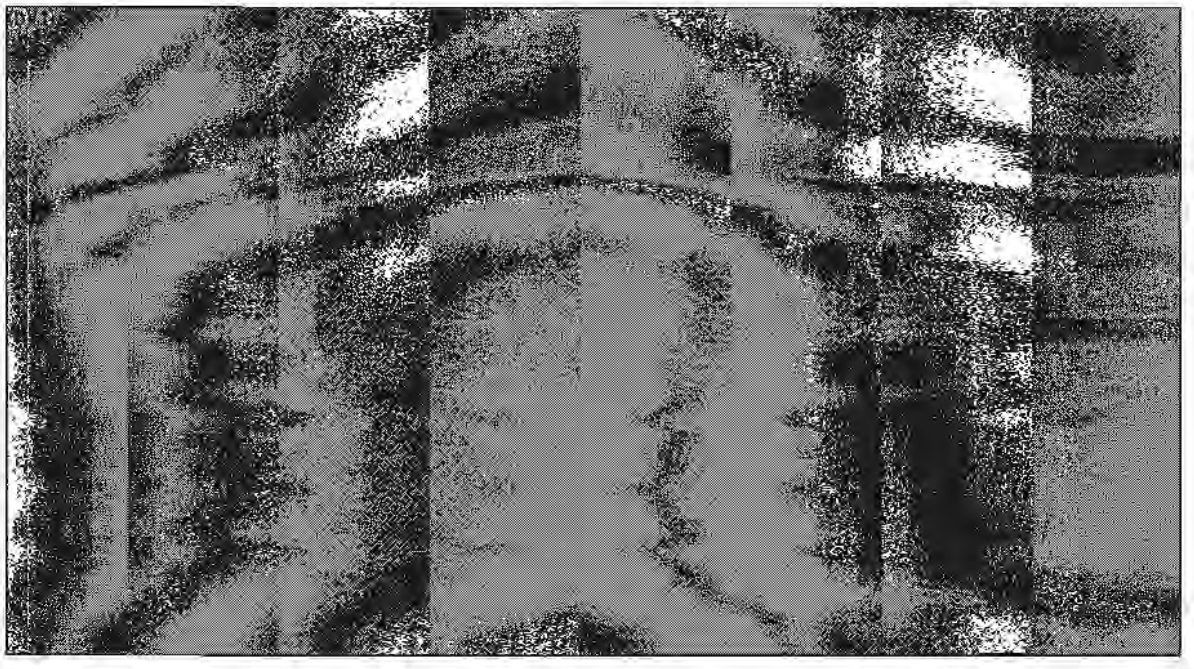


5. (U) Preliminary Findings

a. (U) Counterintelligence Assessments



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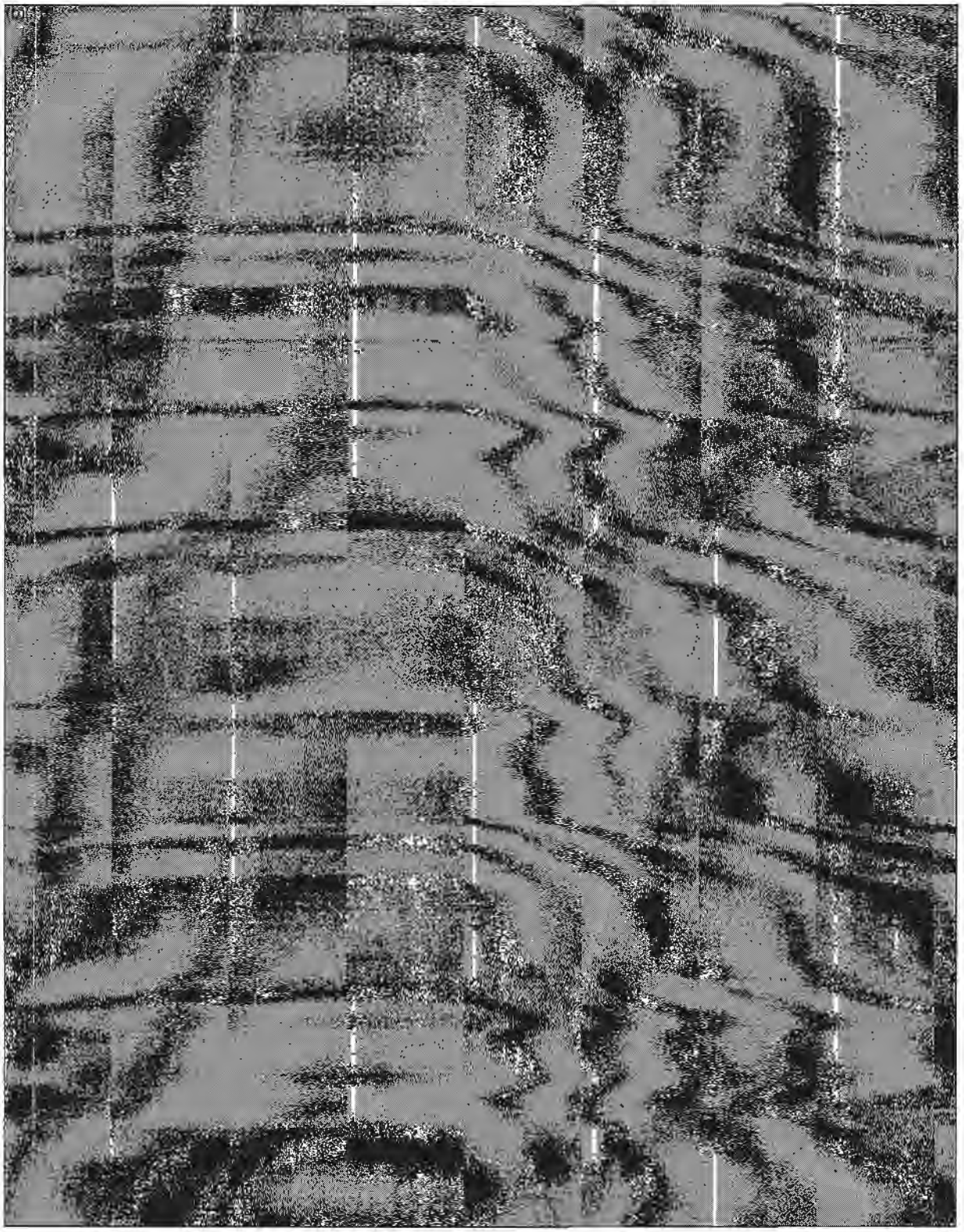

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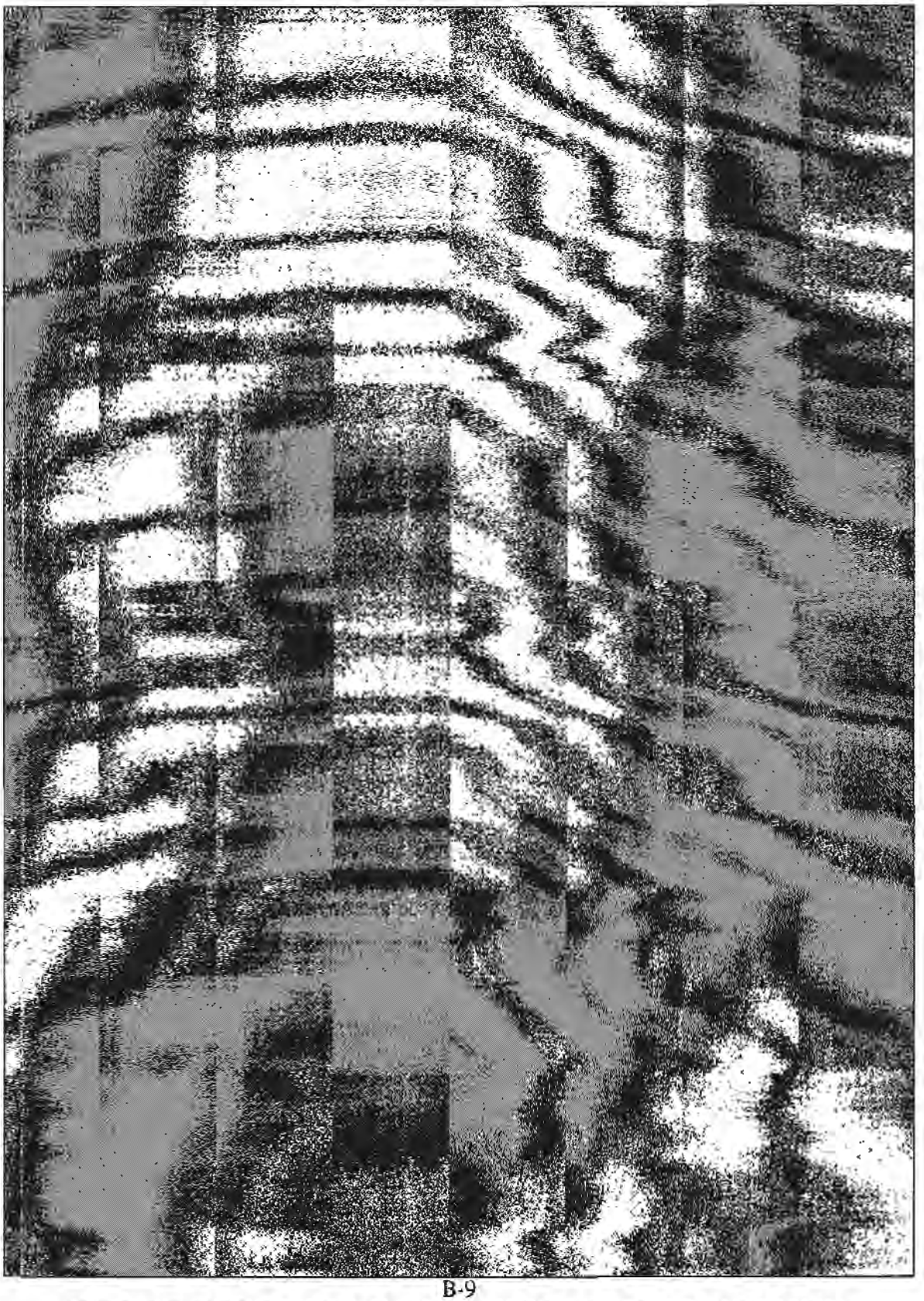

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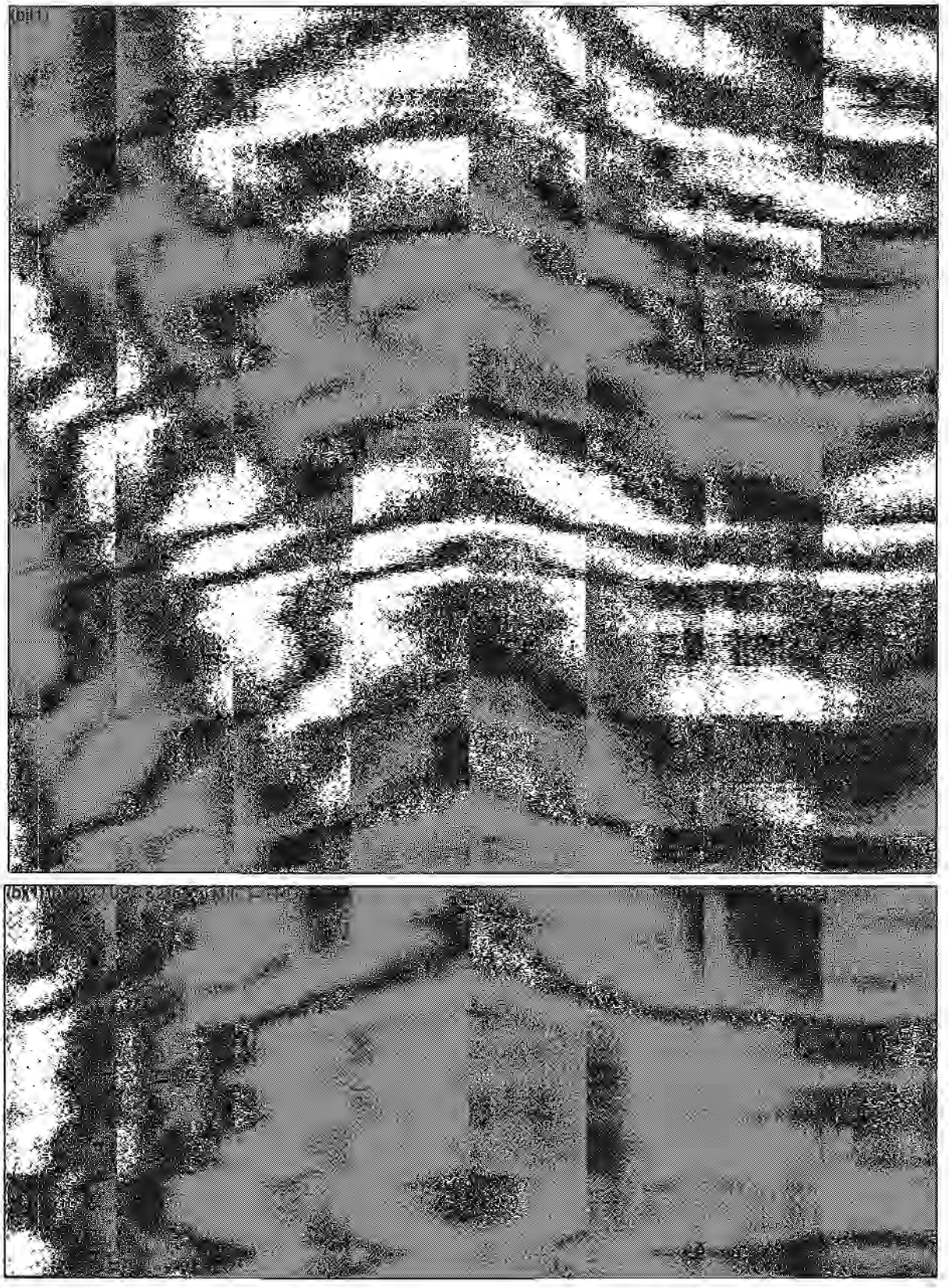
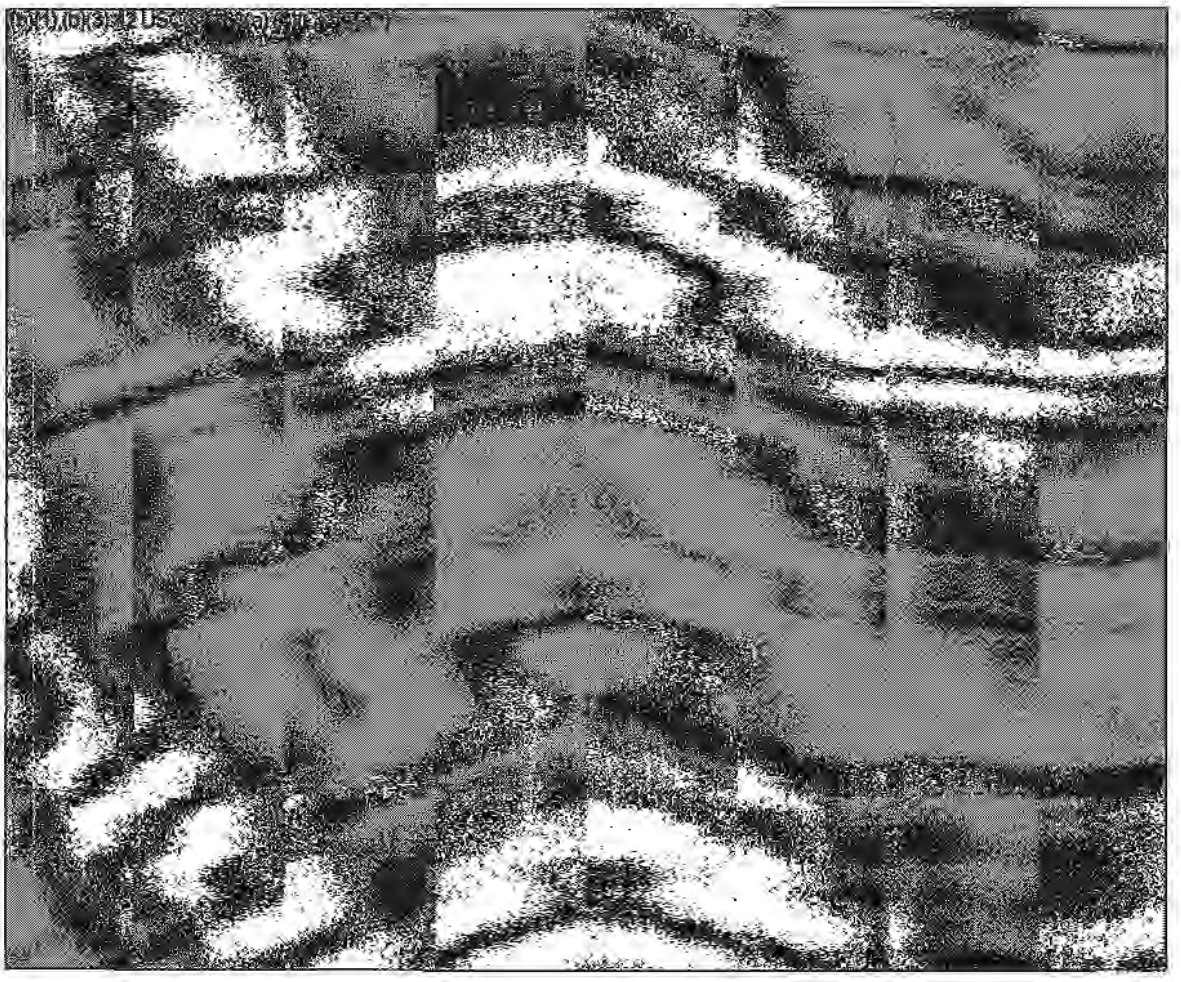
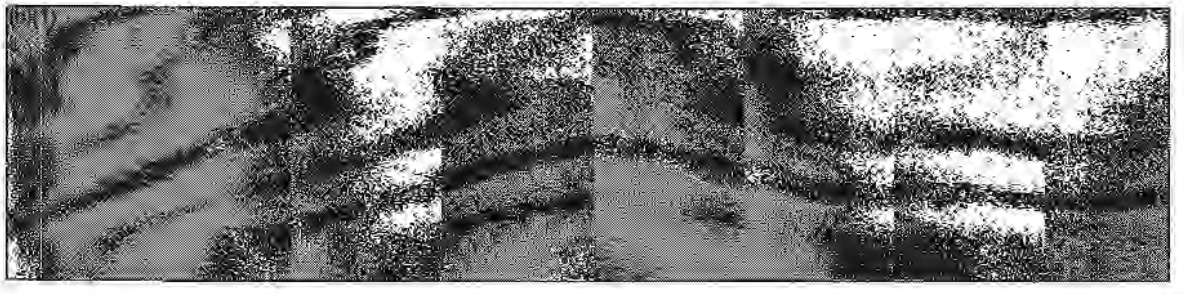






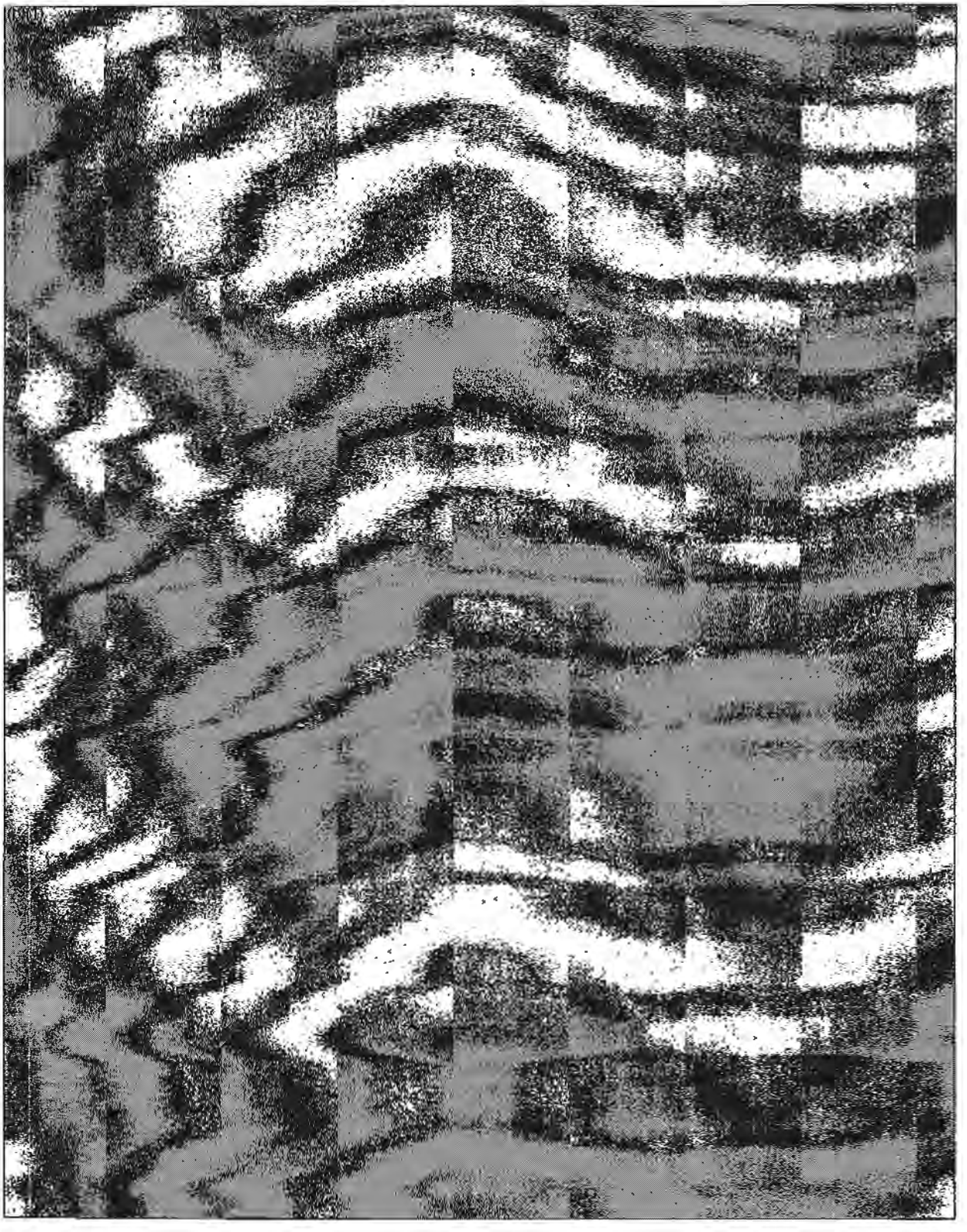
(a) (U) Restrict access to only personnel engaged in the test programs;

(b) (U) Restrict storage to only assets that were part of the test programs, with many parts being of unknown condition and not identified in inventory;

(c) (U) Perform required quarterly inventories; and

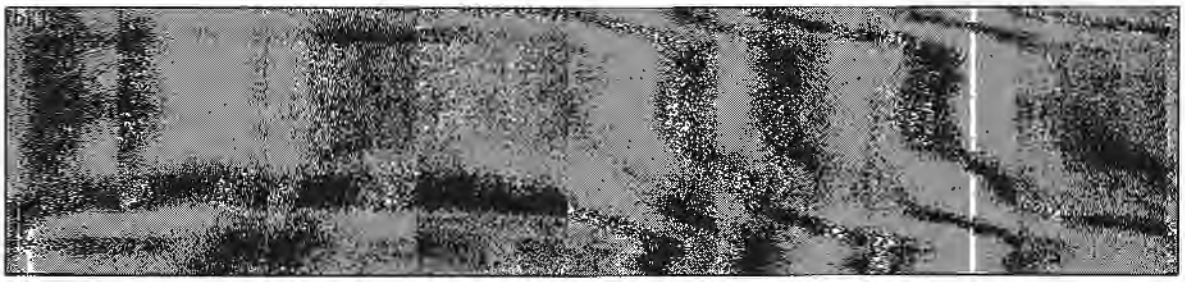
(d) (U) Maintain proper housekeeping and order in the room.

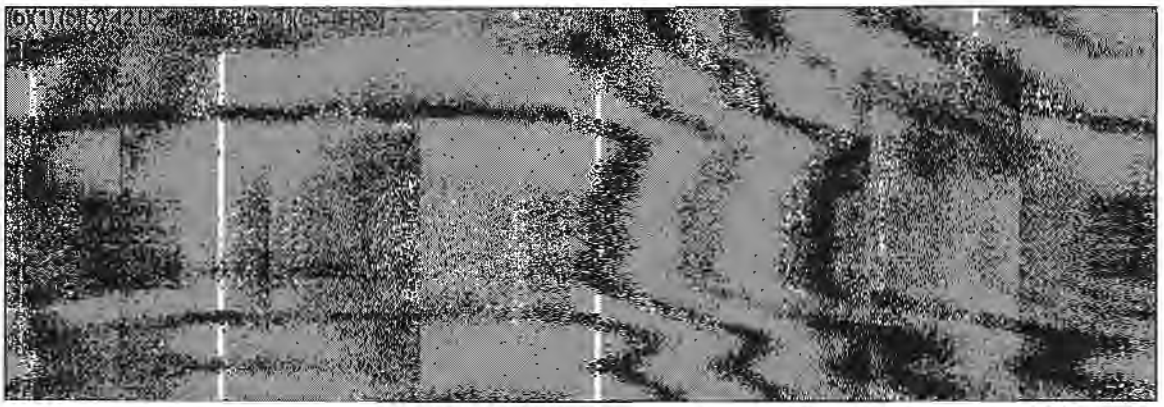
Appendix B: Initial Assessment

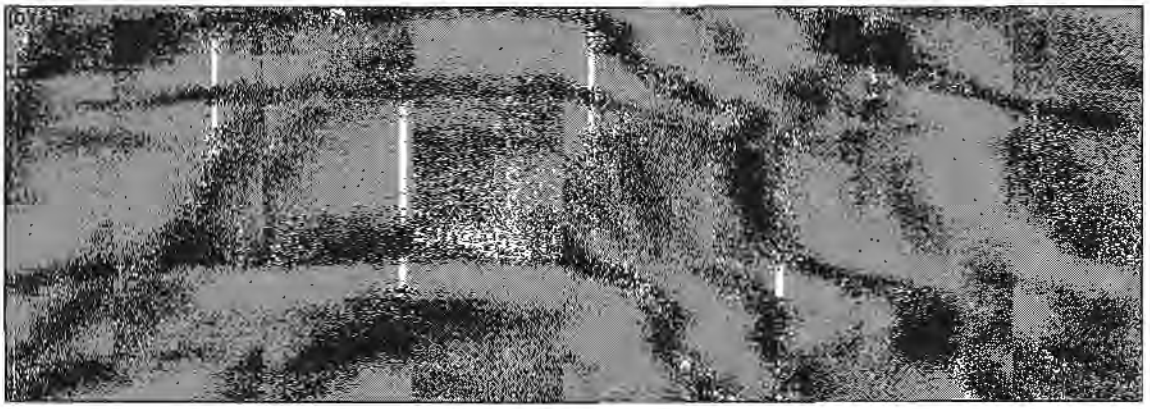


Appendix B: Initial Assessment

6. (U) Recommendations for Near-Term Actions: In the course of the initial assessment, the Investigation Team has identified further near-term actions that should be considered to mitigate existing vulnerabilities:







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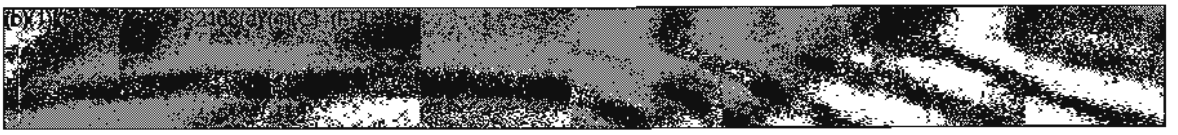


Attachment: Glossary of Acronyms

Glossary of Acronyms (U)

AFB	Air Force Base
AFMC	Air Force Material Command
AFI	Air Force Instruction
AIT	American Institute of Taiwan
CLC	Taiwan Combined Logistics Command
CMOS	Cargo Movement Operations System
DDHU	Defense Distribution Depot Hill, Utah
DIA	Defense Intelligence Agency
DLA	Defense Logistics Agency
DoD	Department of Defense
DSCC	Defense Supply Center Columbus, OH
DSCR	Defense Supply Center Richmond, VA
DSS	Distribution Standard System
DTR	Defense Transportation Regulations
EG&G	DDHU Warehouse Contractor Company
FEDEX	Federal Express Shipping Company
FMS	Foreign Military Sales
FSA	Forward Section Assembly
ICBM	Inter-Continental Ballistic Missile
MIL-STD	Military Standard
MK-12	Mark-12 Minuteman III Reentry Vehicle
MSDS	Material Safety Data Sheet
MSIC	Missile and Space Intelligence Center
NASIC	National Air and Space Intelligence Center
NCIS	Naval Criminal Investigation Service
NSA	National Security Agency
NSN	National Stock Number
ONI	Office of Naval Intelligence
OSD	Office of the Secretary of Defense
PD	Project Directive
PRC	People's Republic of China
REPSHIP	Report of Shipment
RIMCS	Repairable Item Movement Control System
TLO	Taiwan Liaison Officer
TMO	Transportation Management Office
SAFF	Safing-Arming-Fusing-Firing
SDR	Supply Discrepancy Report
SW	Space Wing
USASAC	U.S. Army Security Assistance Command
USAF	United States Air Force
USA	United States Army
WebSDR	Electronic Email Supply Discrepancy Report


TAPE

APPENDIX C

ORGANIZATIONS VISITED

Reviews were conducted at the following sites:

1. Ft. Belvoir, Virginia: Headquarters, Defense Logistics Agency

2. F. E. Warren AFB, Wyoming
   a. 20th Air Force
   b. 90th Space Wing

3. Hill AFB, Utah
   a. Ogden Air Logistics Center
   b. 508th Aerospace Sustainment Wing
   c. 309th Missile Maintenance Group
   d. 526th ICBM Systems Group
   e. Defense Distribution Depot Hill, Utah (DDHU)

4. Pentagon, Virginia
   a. Deputy Air Force Chief of Staff for Air, Space, and Information Operations, Plans, and Requirements
   b. Deputy Air Force Chief of Staff for Logistics, Installations, and Mission Support
   c. Director of Maintenance, Deputy Air Force Chief of Staff for Logistics, Installations, and Mission Support
   d. Air Force Inspector General

5. Wright-Patterson AFB, Ohio: Air Force Materiel Command

6. Peterson AFB, Colorado: Air Force Space Command

7. Kirtland AFB, New Mexico
   a. Air Force Nuclear Weapons Center
   b. Air Force Safety Center
   c. Air Force Inspection Agency

8. Malmstrom AFB, Montana: 341st Space Wing

9. Minot AFB, North Dakota
   a. 5th Bomb Wing
   b. 91st Space Wing

10. Arlington, Virginia: U.S. Navy Strategic Systems Programs

TAB D

APPENDIX D

INVESTIGATION TEAM

Admiral Kirkland H. Donald, U.S. Navy

Name	*Rank/Title*	*Command*
(b)(6)		Naval Reactors
Burrows, Charles	Mr.(SES)	Naval Reactors
(b)(6)		OJAG
Gove, David	RADM	Naval Reactors
(b)(6)		Naval Reactors
Mueller, Troy	Mr.(SES)	Naval Reactors
(b)(6)		U.S. Strategic Command
Rodgers, Stephen	Mr.(SES)	Naval Reactors
(b)(6)		OPNAV N84
		Naval Reactors
		Naval Reactors
		Naval Reactors
		Naval Reactors
		Naval Reactors
		OJAG
		OGC
		Naval Reactors
		Naval Reactors
		Naval Reactors
		Naval Reactors
		Naval Reactors

Support

(b)(6)	CNP/N1
	CCSG 8
	CNRC
	NIOC MD
	OGC
	Naval Reactors
	OPNAV N84
	CNO N80

ONI/NCIS

(b)(6)	ONI
	ONI
	NCIS
	NCIS
	NCIS
	NCIS
	NCIS
	NCIS

TABE

APPENDIX E

COMMAND DESCRIPTIONS

1. (U) Air Force Space Command (AFSPC):

(U) The mission of the AFSPC is to defend the United States through the control and exploitation of space. This is accomplished by operating space systems, providing support from space to terrestrial forces, and operating ballistic missile forces as a deterrent against nuclear attack; providing assured mission capability, including ground control support for designated Department of Defense (DOD) satellites, as required through all levels of conflict; providing warning of a space ballistic missile attack; providing the ability to protect friendly satellites and to negate enemy spacecraft as directed; and maintaining the Intercontinental Ballistic Missile (ICBM) force, people and material. The mission of AFSPC includes specific responsibilities as both the Air Force component of United States Space Command (USSPACECOM) for space forces, and U.S. Strategic Command (USSTRATCOM) for ICBM forces; and, as an Air Force Major Command (MAJCOM). These responsibilities are interrelated and also entail specific relationships with other commands and agencies, both United States and Allied.

2. (U) Air Force Materiel Command (AFMC):

(U) AFMC equips the Air Force with weapons systems through a series of facilities that foster "cradle-to-grave" oversight for aircraft, missiles, munitions and the people who operate them. Weapon systems, such as aircraft and missiles, are developed and acquired through four product centers, using science and technology from the research sites that make up the Air Force Research Laboratory. The systems are tested in AFMC's three test centers, then are serviced and receive major repairs over their lifetime at the command's five air logistics centers.

3. (U) United States Army Security Assistance Command (USASAC):

(U) USASAC, with headquarters at Fort Belvoir, VA, implements approved U.S. Army security assistance programs, including Foreign Military Sales (FMS) of defense articles and services to eligible foreign governments. USASAC is responsible for Army security assistance information management and financial policy, and provides logistics guidance to the Army security assistance community. Additionally, USASAC is responsible for lifecycle management of FMS cases, from development to execution, financial management, accounting, and settlement.

4. (U) 20th Air Force:

(U) The 20th Air Force exercises operational control over the nation's ICBMs at three wings. It provides safe, secure, and ready ICBM alert forces to USSTRATCOM and is responsible for alert force operations, logistics, and security functions for the nation's ICBMs. It also assesses Wings' combat capability, nuclear surety compliance, technical expertise, and management skills.

5. (U) 341st Space Wing:

(U) The 341st Space Wing, headquartered at Malmstrom AFB, MT, is one of three U.S. Air Force Bases that maintains and operates the Minuteman III ICBM. The 341st Space Wing reports directly to 20th Air Force. The 341st Space Wing is made up of five groups - the 341st Operations Group, 341st Maintenance Group, 341st Mission Support Group, 341st Security Forces Group and 341st Medical Group.

6. (U) 91st Space Wing:

(U) The 91st Space Wing, Minot AFB, ND, is one of three U.S. Air Force Bases that maintains and operates the Minuteman III ICBM. The 91st Space Wing is an element of 20th Air Force and consists of three groups - the 91st Operations Group, 91st Maintenance Group and 91st Security Forces Group.

7. (U) 90th Space Wing:

(U) The 90th Space Wing, F.E. Warren AFB, WY, is one of three U.S. Air Force Bases that maintains and operates the Minuteman III ICBM. The Wing is comprised of five groups which include the 90th Operations Group, 90th Maintenance Group, 90th Mission Support Group, 90th Security Forces Group, and 90th Medical Group.

8. (U) Space and Missile Systems Center (SMSC):

(U) The SMSC at Los Angeles AFB, CA, designs and acquires all Air Force and most DOD space systems. It oversees launches, completes on-orbit checkouts, then turns systems over to user agencies. It supports the Program Executive Office for Space on the Navstar Global Positioning, Defense Satellite Communications and Milstar systems. SMSC also supports the Titan IV, Defense Meteorological Satellite and Defense Support programs, and Follow-on Early Warning System. In addition, it supports development and acquisition of land-based ICBMs for the Air Force Program Executive Office - Strategic Systems.

9. (U) 526th ICBM Systems Group:

(U) The 526th ICBM Systems Group maintains "cradle to grave" responsibility for the Minuteman III weapon system. Located at Hill Air Force Base, Utah, it falls under the Air Force's Space and Missile Center at Los Angeles Air Force Base. The Group is responsible for sustainment, program control, acquisition and modification management, aging/surveillance analysis, depot level maintenance requirements & budgeting, storage and transportation, requirements & budgeting, Peacekeeper disposition, and systems engineering and integration. In 2007, the wing was reduced to a group, and was made subordinate to the 508th Aerospace Sustainment Wing. As the ICBM Systems Program Office (SPO), it develops, acquires, and supports silo-based ICBMs and provides program direction and logistics support as the single face to the customer. The SPO is responsible for acquisition, systems engineering and depot repair support; manages equipment spares; provides storage and transportation; and, accomplishes modifications and equipment replacement to maintain silo-based ICBM systems. The ICBM Prime Integration Contract (PIC) Program Management Office, LM(3), is charged with day-to-day execution and management of the PIC.

10. (U) Ogden Air Logistics Center:

(U) Ogden Air Logistics Center, at Hill AFB, Utah, provides logistics support for the entire Air Force inventory of ICBMs, as well as depot-level maintenance for F/RF-4, F-16 and C-130 aircraft. Other responsibilities include management of the Maverick air-to-ground missile, GBU-15 and laser-guided bombs and the Emergency Rocket Communications Systems. The center is the logistics manager for all landing gear, air munitions, solid propellants and explosive devices used by the Air Force.

11. (U) 508th Aerospace Sustainment Wing:

(U) The 508th Aerospace Sustainment Wing at Hill AFB, Utah provides sustainment of existing systems as well as the acquisition of new and improved airpower capabilities. It was activated as the 508th Aircraft Sustainment Wing, but was redesignated in 2007. Support includes acquisition, modifications, modernization, engineering and technical, as well as maintenance, repair and planning. Programs include the F-16 Fighting Falcon, A-10 Thunderbolt II, T-37 Tweet, T-38 Talon, aerial targets, multiple mature and proven aircraft and training devices for nearly all aircraft in the Air Force inventory, as well as trainers for space systems control and air traffic control towers. The wing includes sustainment planning and preparation for the F/A-22 and F-35 aircraft.

12. (U) 309th Maintenance Wing:

(U) The 309th Maintenance Wing is a source of maintenance, repair, overhaul and modification for the F-22 Raptor, F-16 Fighting Falcon, A-10 Thunderbolt and C-130 Hercules aircraft, as well as the ICBM system. The wing possesses a skilled workforce of approximately 8,000 military and civilian employees, and its 294 facilities cover 5.2 million square feet of production and support areas at nine operating locations, including repair organization in the Pacific and in Tucson, Arizona.

13. (U) 5th Bomb Wing:

(U) The 5th Bomb Wing is a B-52 unit based at Minot Air Force Base. The wing is one of only two B-52 wings. The 5th Bomb Wing is part of the Air Combat Command's Eighth Air Force. To perform its mission, four groups are assigned: the 5th Operations Group, 5th Mission Support Group, 5th Maintenance Group and 5th Medical Group totaling a force of approximate 3,200 military members as well as 420 civilian employees.

14. (U) Defense Logistics Agency (DLA):

(U) DLA functions as an integral element of the military logistics system of the DOD to provide effective and efficient worldwide logistics support to the Military Departments and the Combatant Commands under conditions of peace and war, as well as to other DOD Components and Federal agencies, and, when authorized by law, State and local government organizations, foreign governments, and international organizations.

15. (U) Defense Supply Center Columbus (DSCC):

(U) DSCC is one of three Inventory Control Points of the DLA. DSCC is the lead center for land and sea support. Products include maritime-based systems as well as electronic commodities. They supply weapon systems spare parts and end items and manage almost 1.8 million different construction and electronic spare parts.

16. (U) Defense Supply Center Richmond (DSCR):

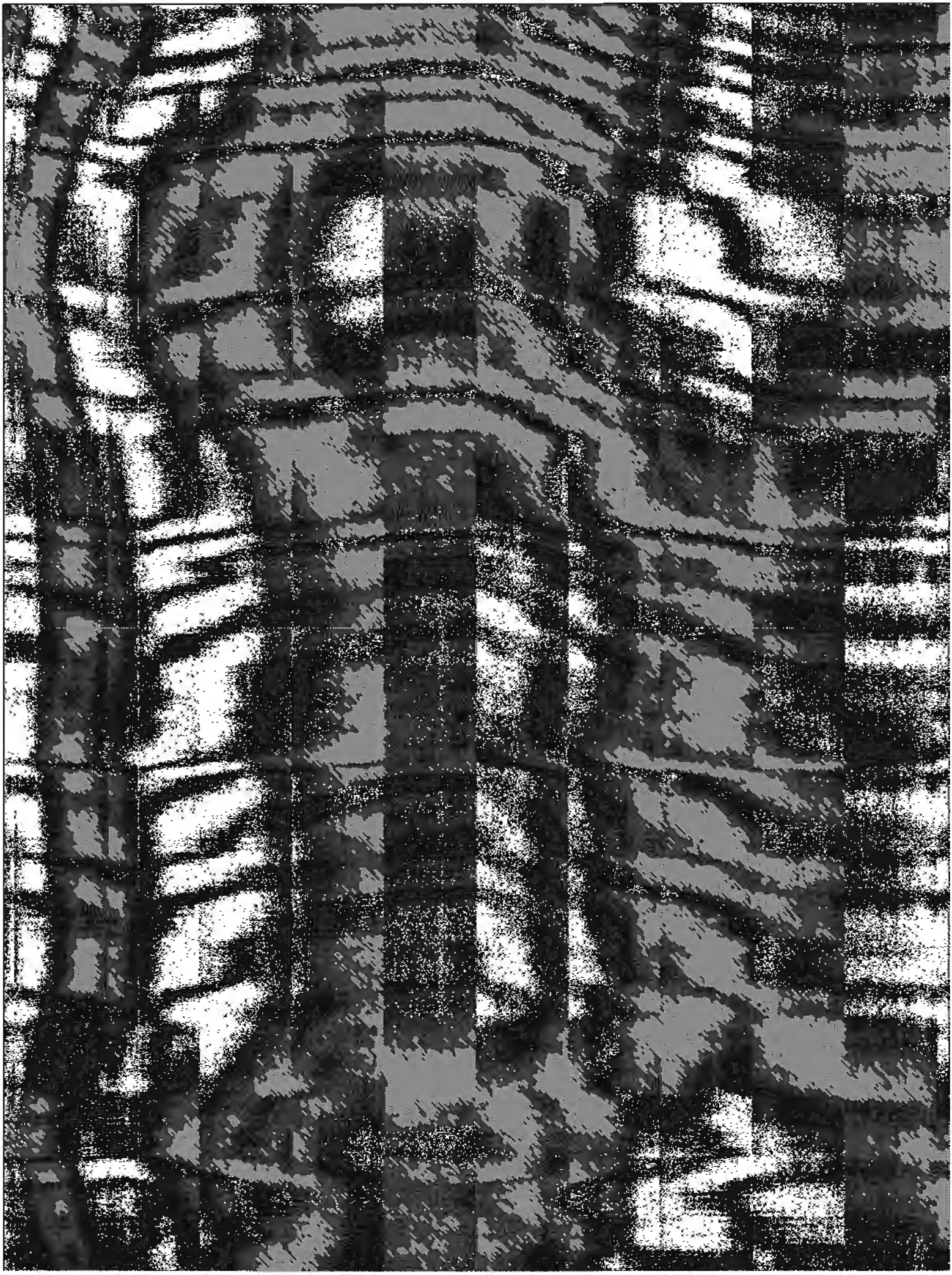
(U) DSCR is the aviation supply and demand chain manager for DLA and serves within the DOD as the primary source of supply for more than 1.2 million repair parts and operating supply items. DSCR's mission is to provide best value aviation weapon systems and environmental logistics support to America's armed forces on land, at sea and in the air.

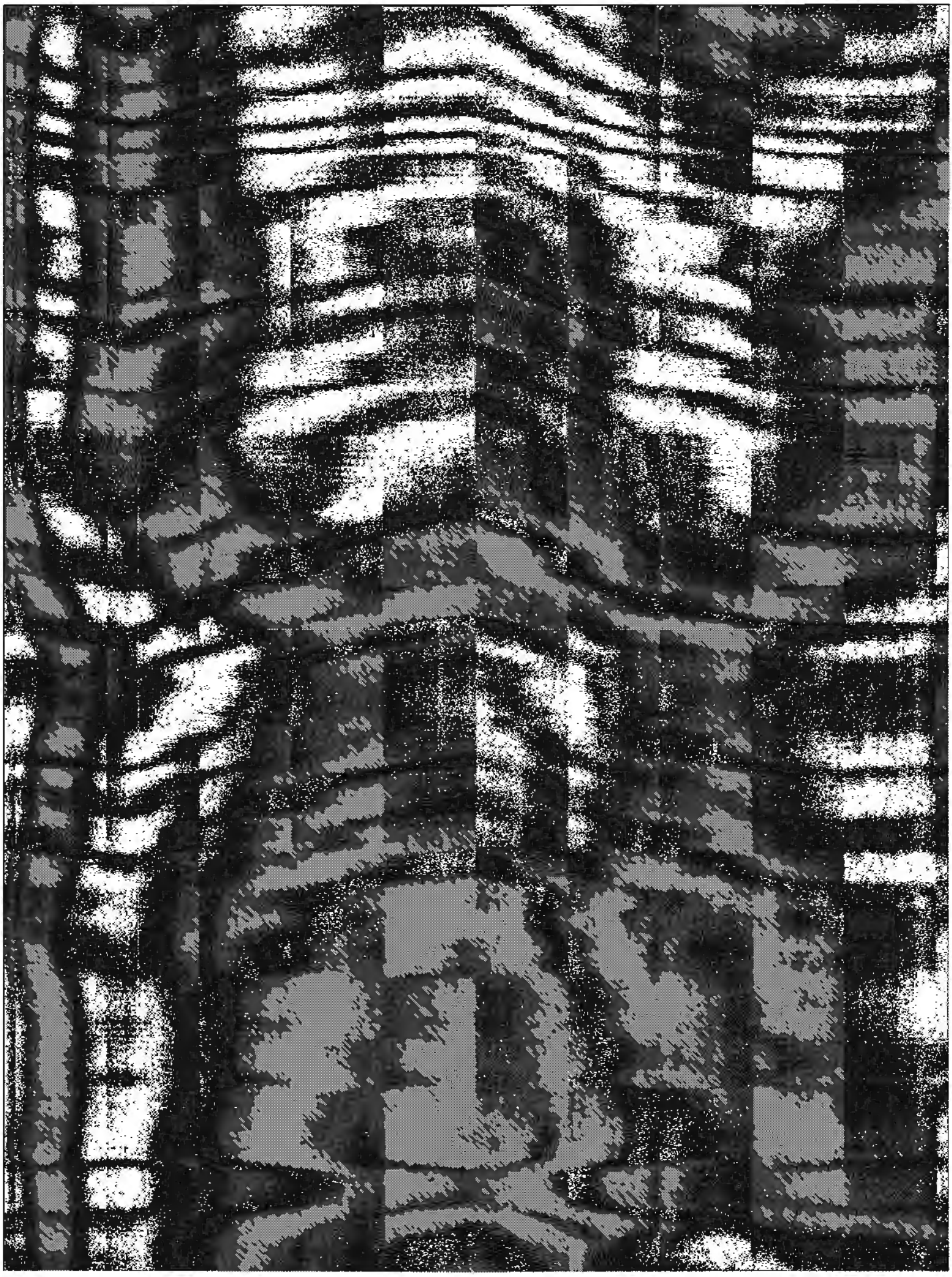
17. (U) Defense Distribution Center (DDC):

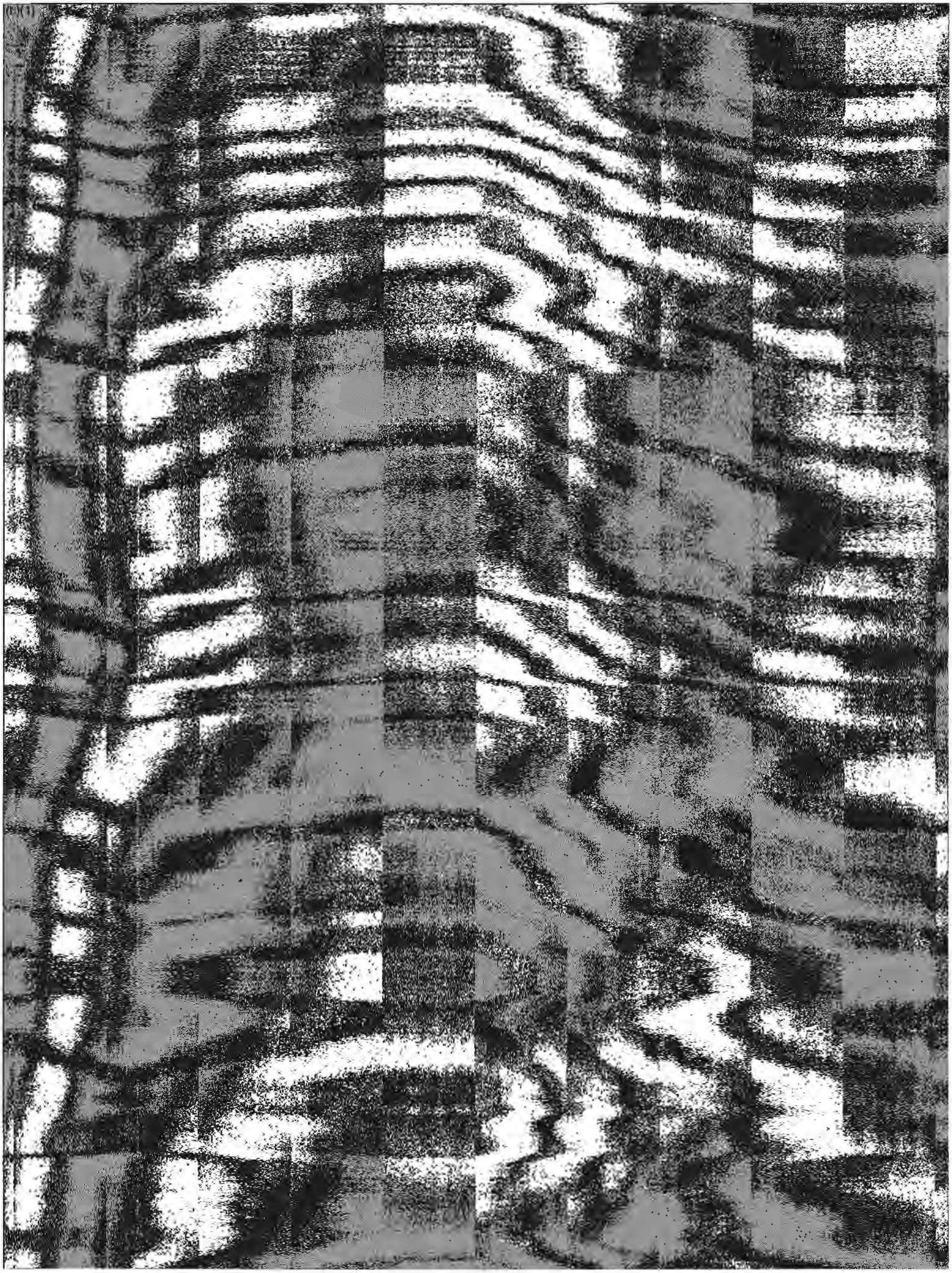
(U) DDC is a Primary Level Field Activity (PLFA) of DLA. The DDC, headquartered in New Cumberland, Pennsylvania has oversight of 26 distribution depots worldwide. The depots comprise two categories of facilities. Some are highly automated, specifically designed to provide global support for general commodities; others are used to fill customer requirements on a regional basis or to provide global support for material that requires special handling, equipment, facilities, or training.

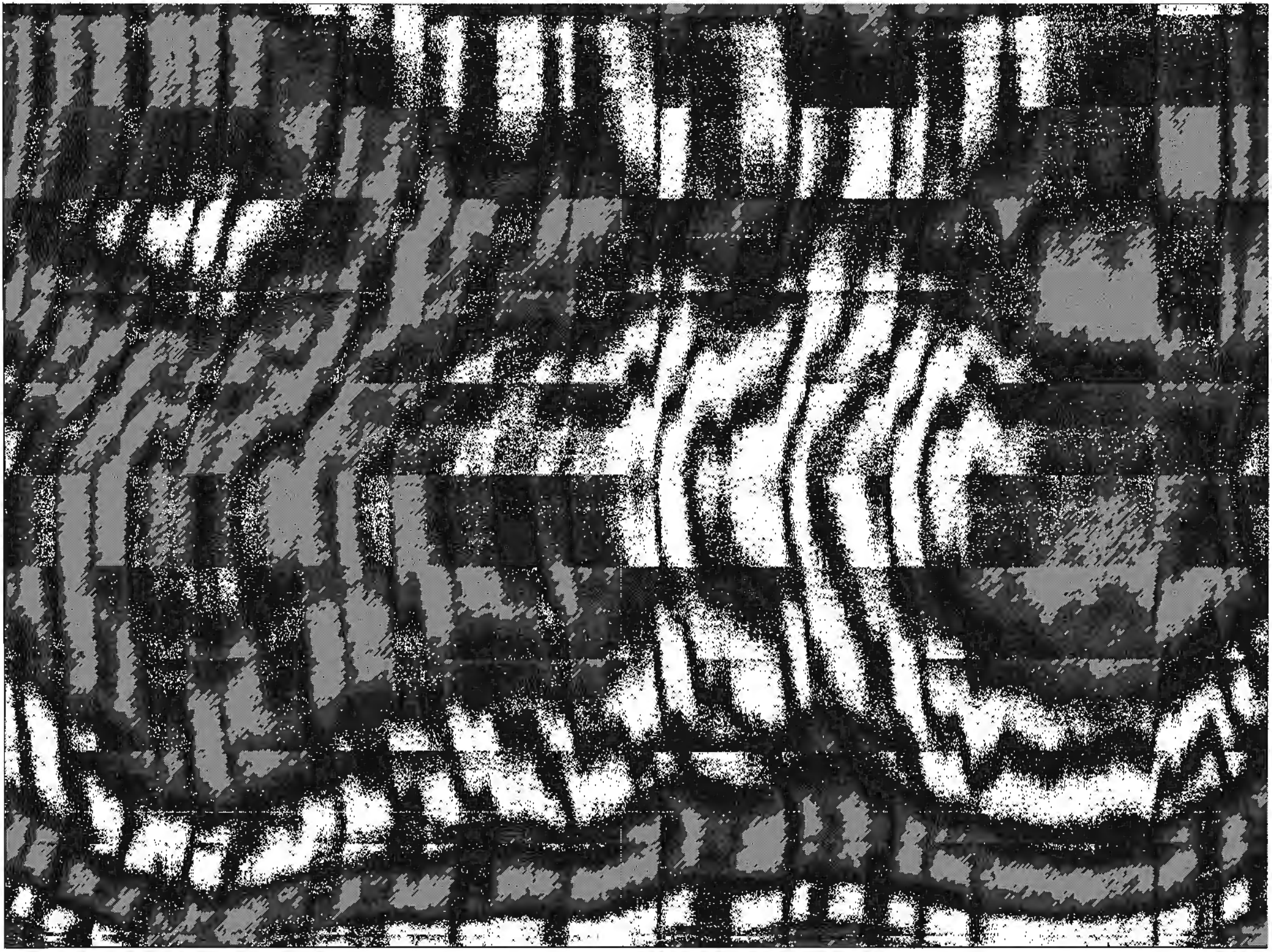
18. (U) Defense Distribution Depot Hill, Utah (DDHU):

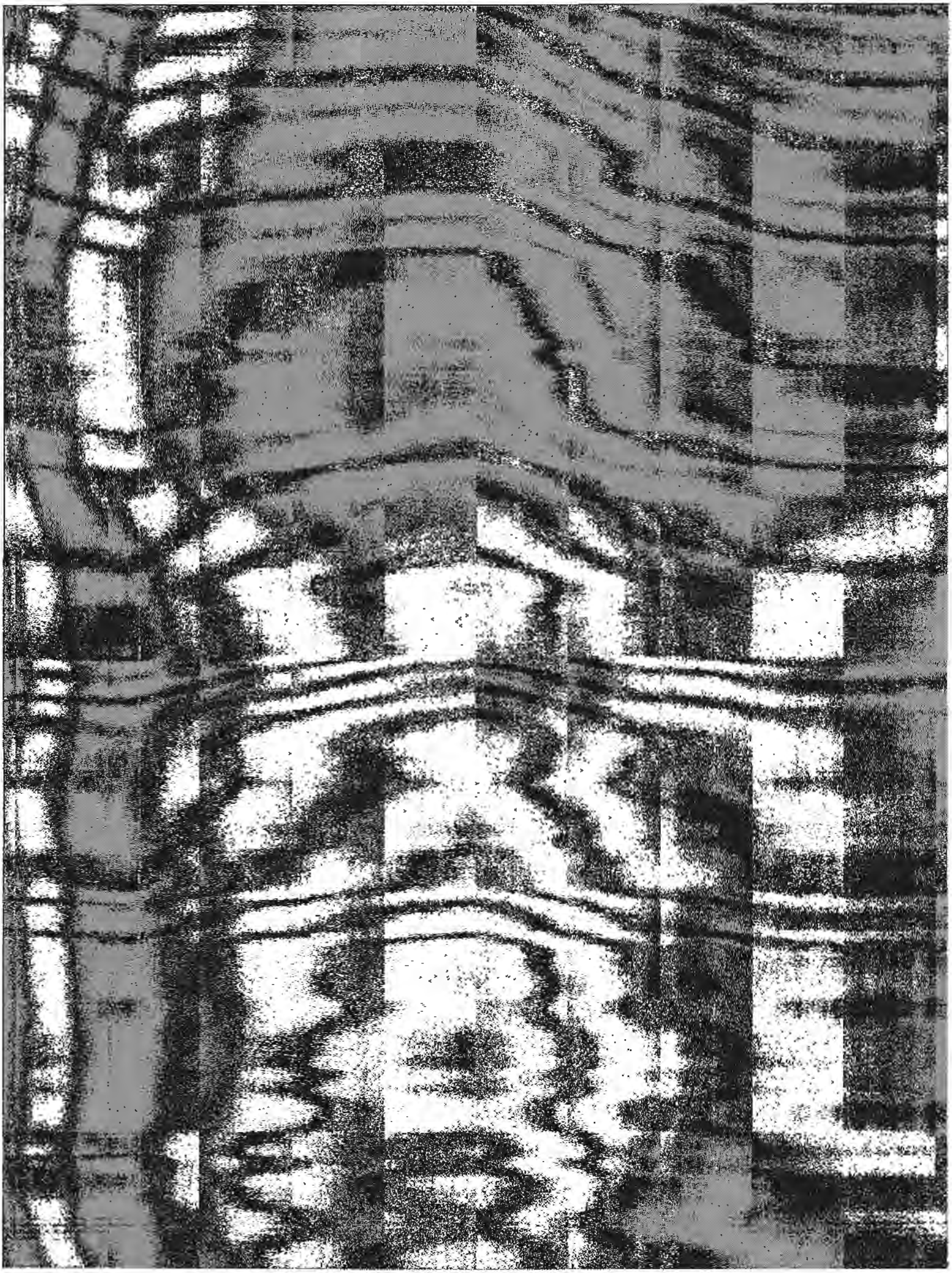
(U) DDHU is located at Hill Air Force Base, Utah. DDHU conducts distribution operation to include receiving, storage, packing and shipping of military weapons system spare parts. DDHU provides primary distribution support for ICBMs and supports two on-base fighter wings and maintenance functions performed by the Ogden Air Logistics Center as well as numerous military units throughout the world. DDHU is also responsible for the assembly of the Army's Deployable Medical Systems and reprograms microcircuit chips with new instructions for use on general and special purpose computers found in DOD weapons systems.

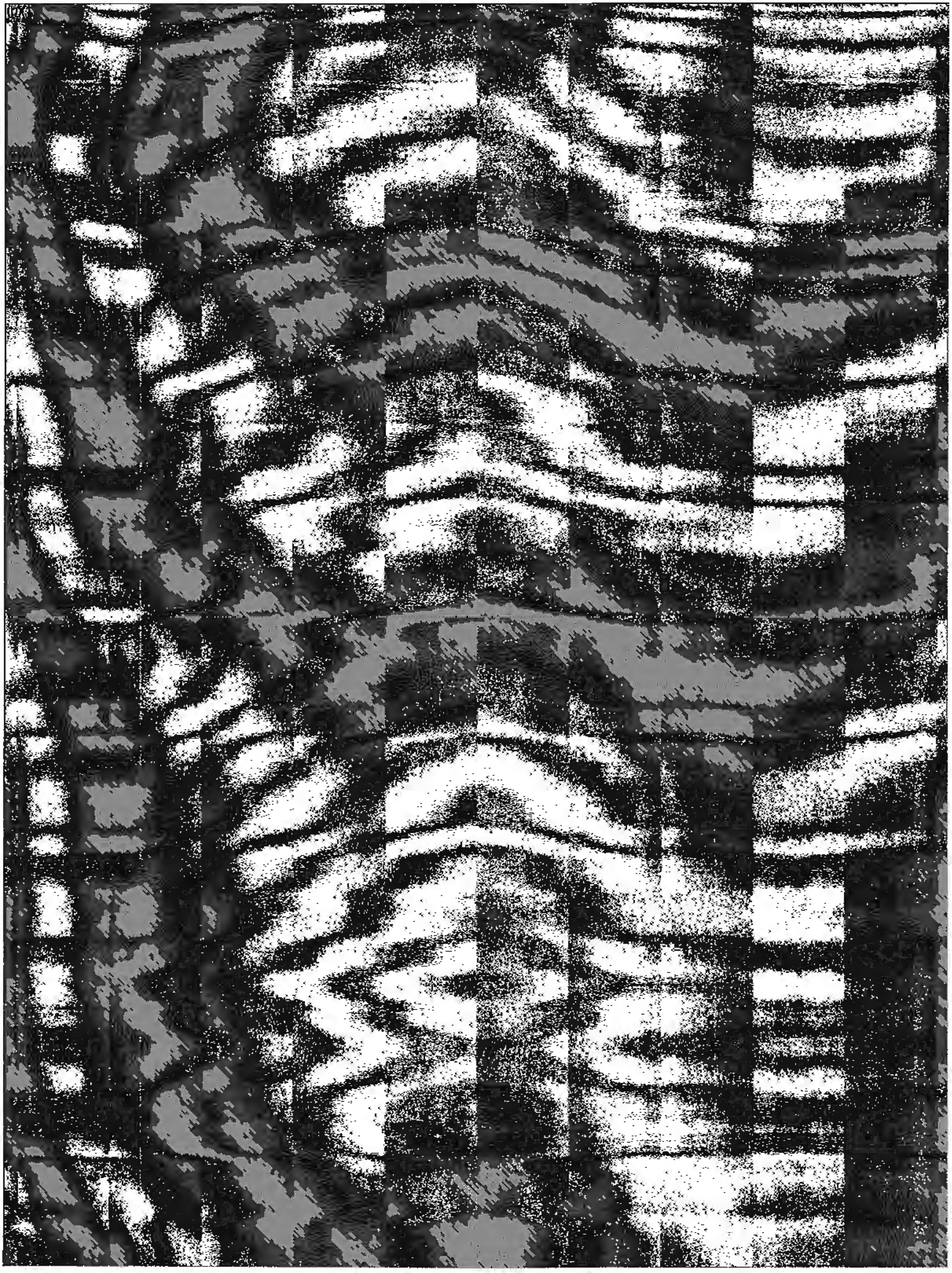


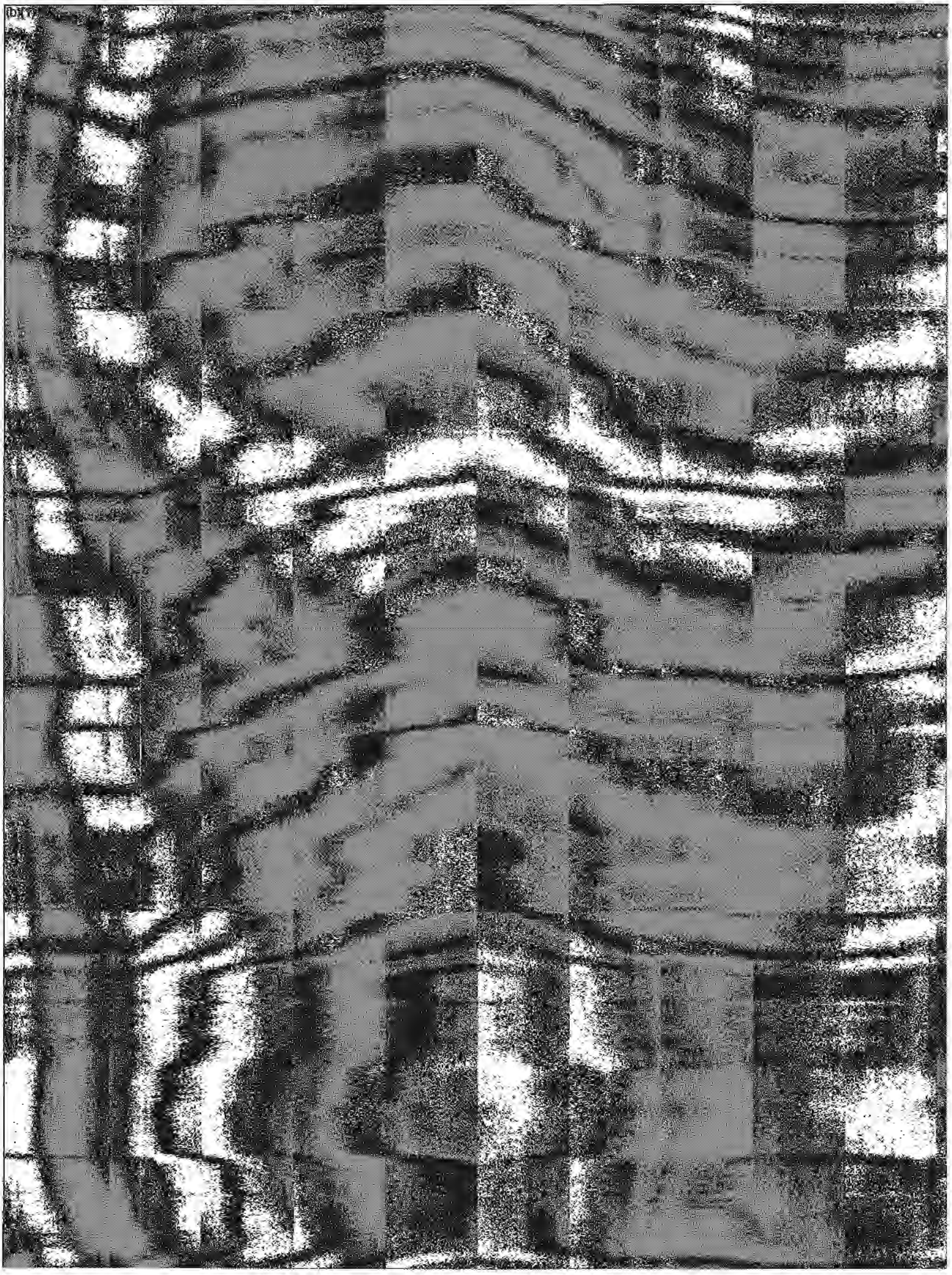


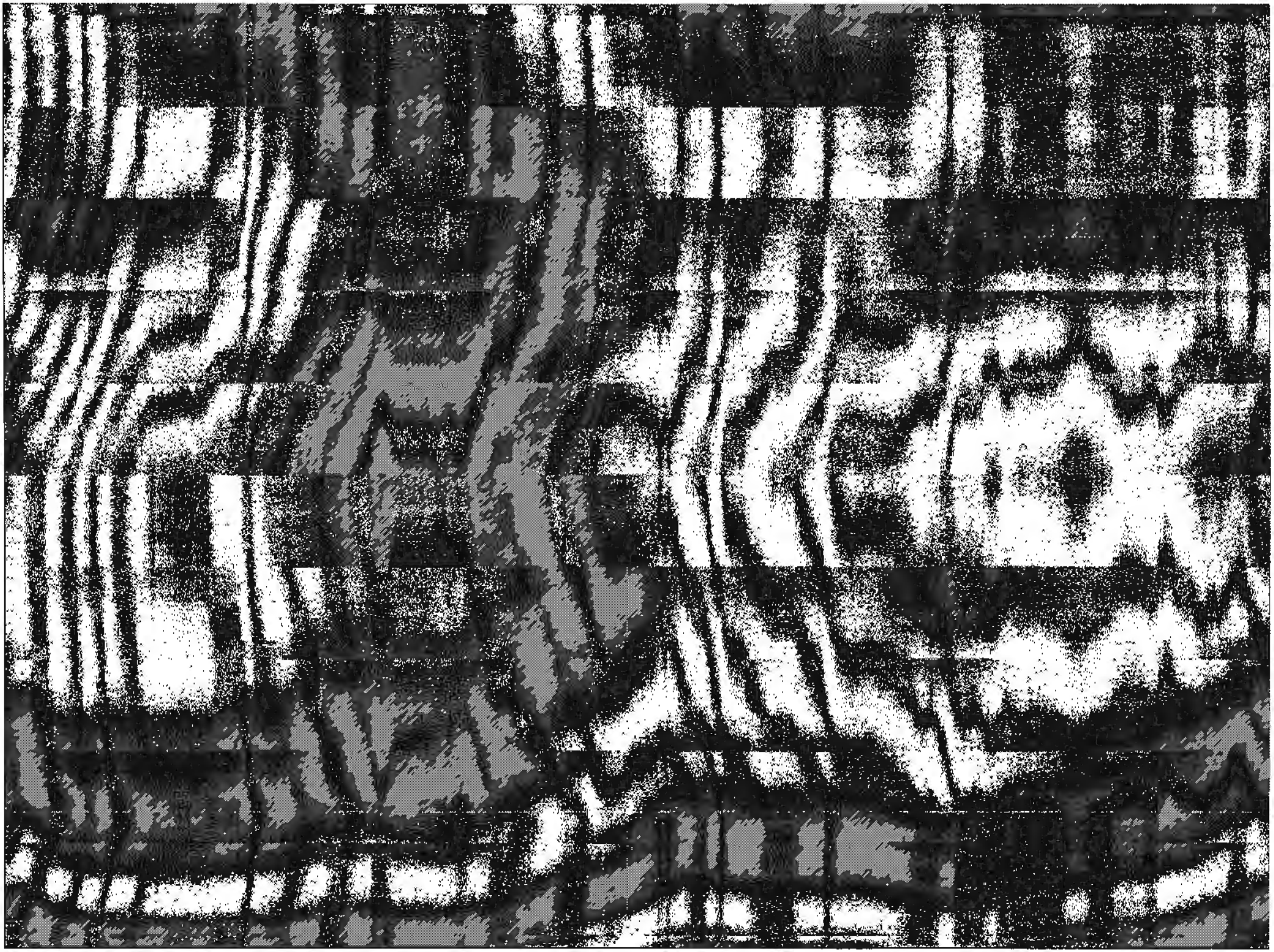


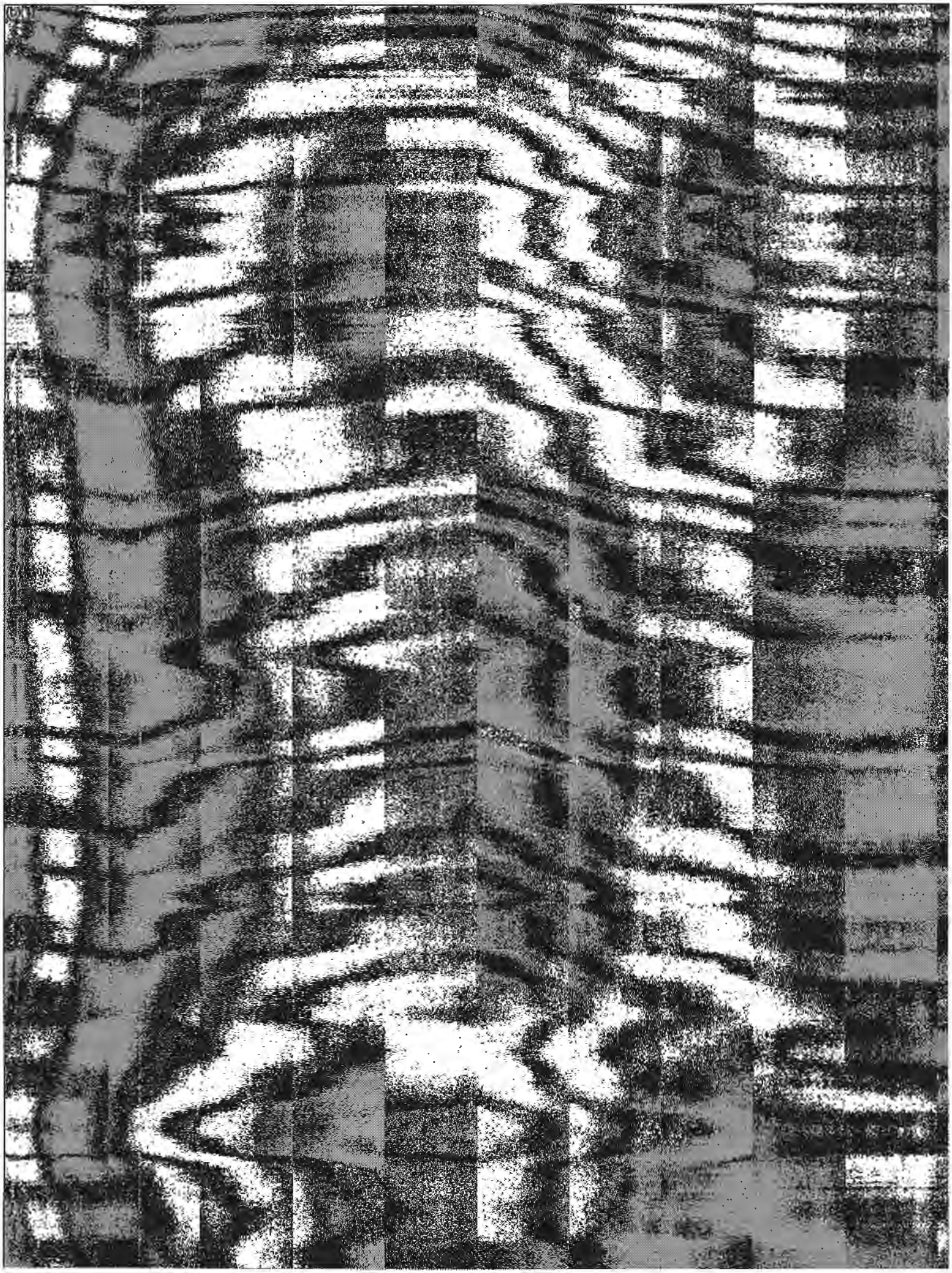


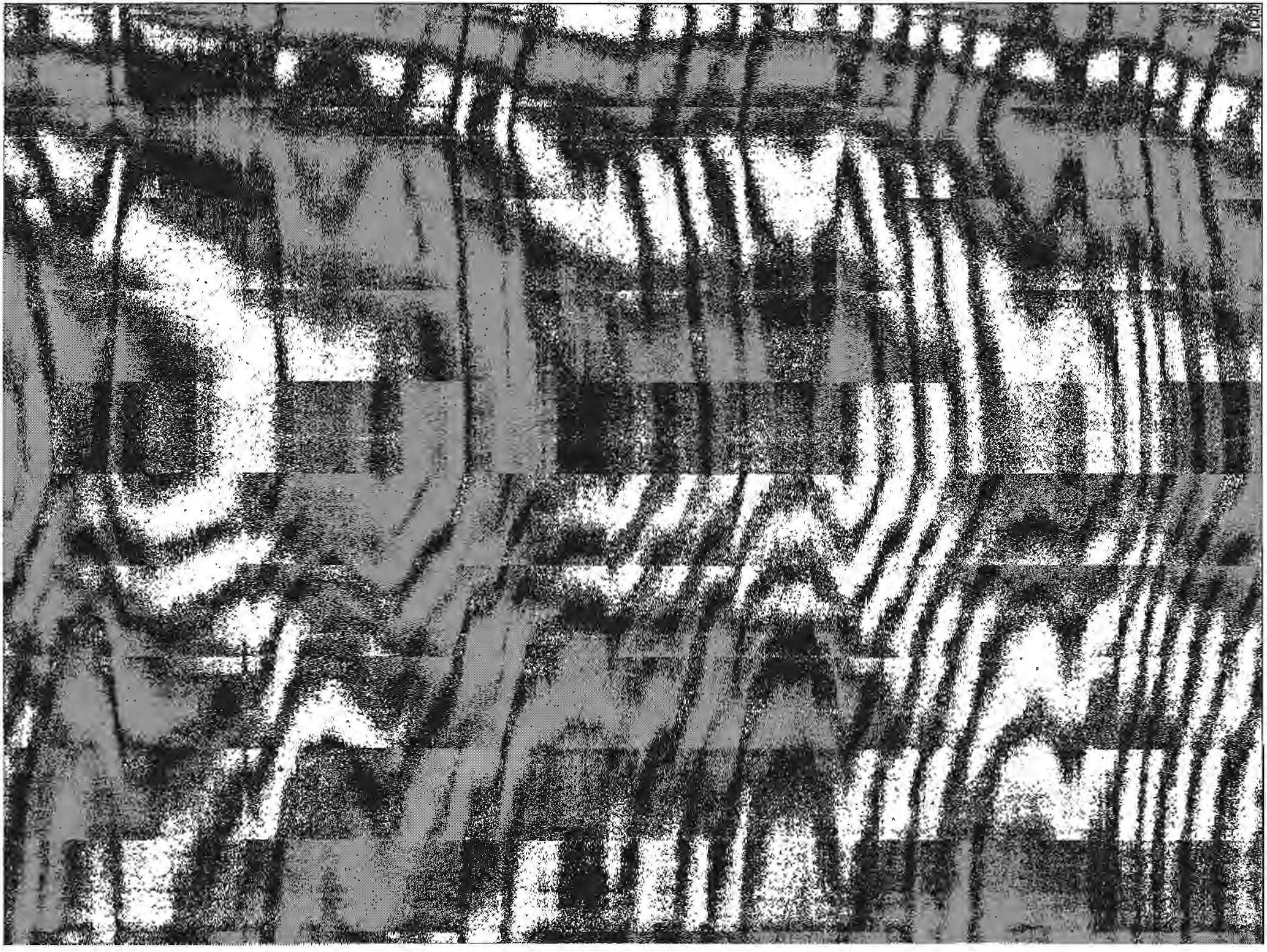


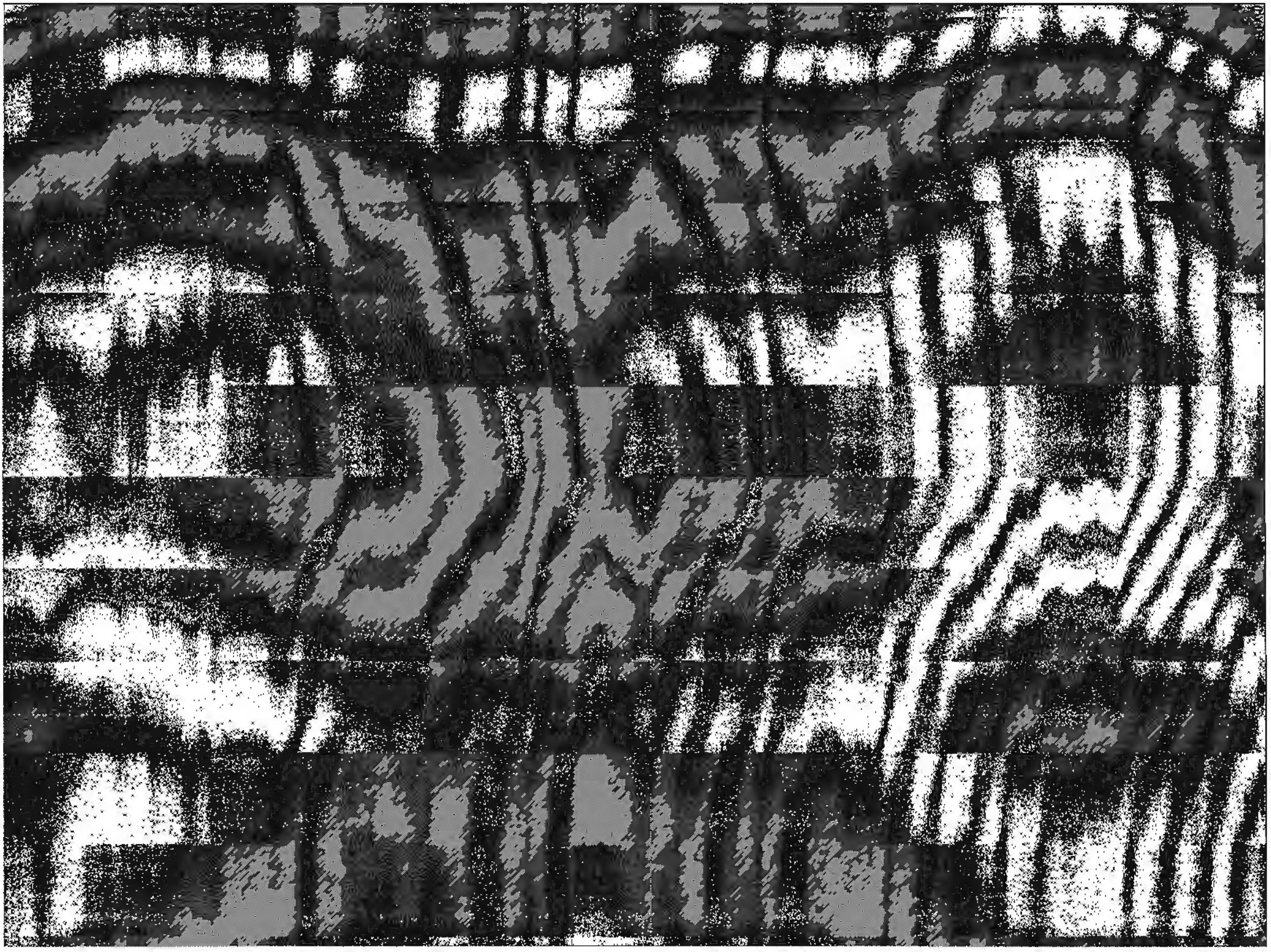


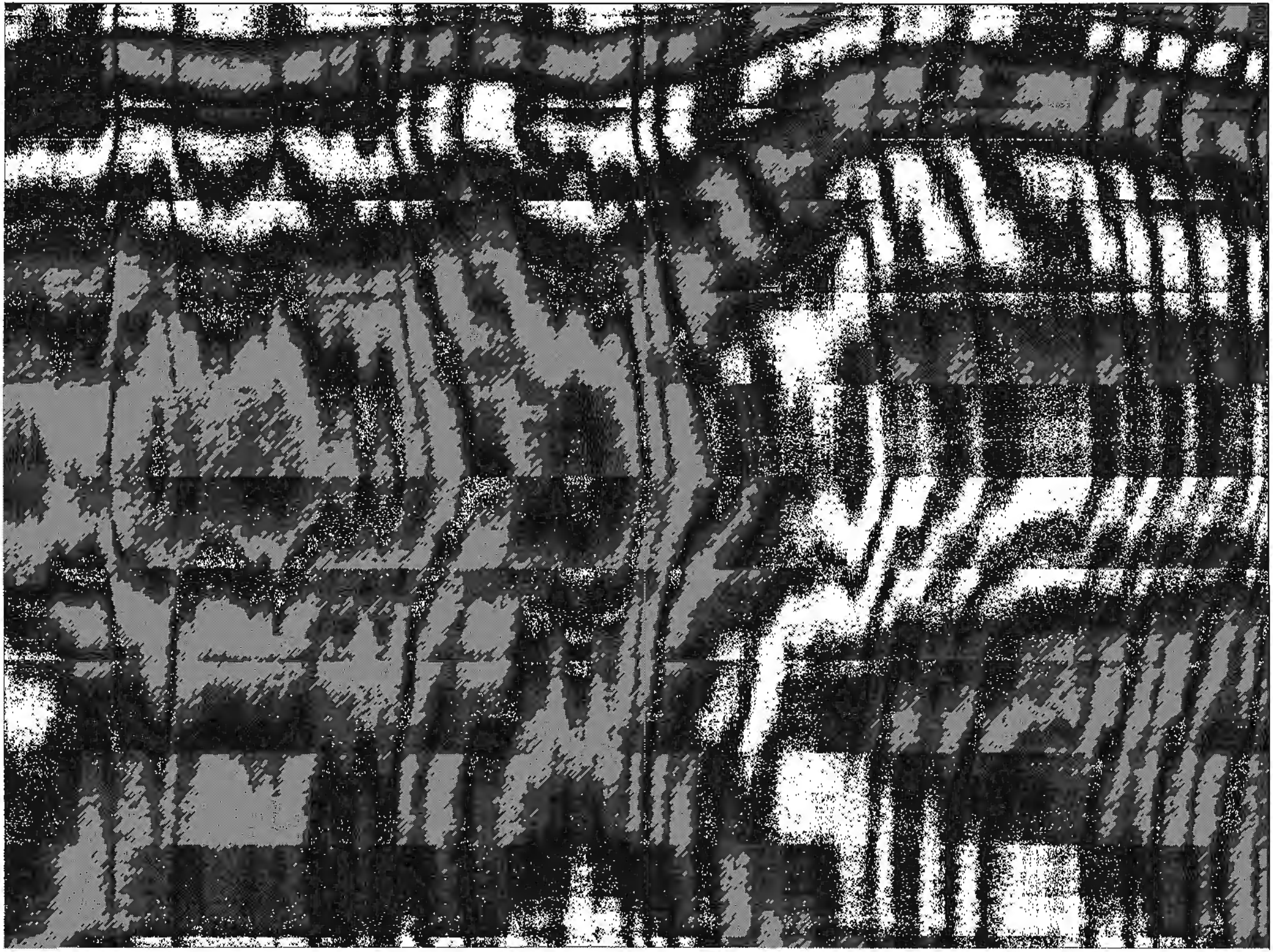






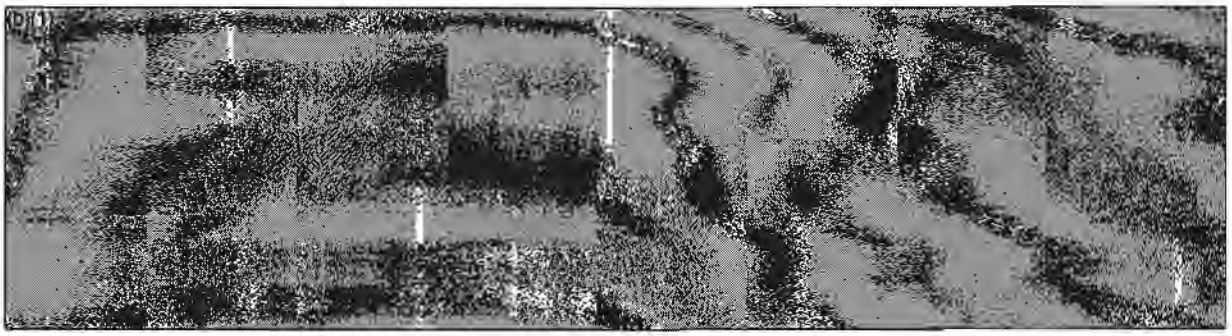




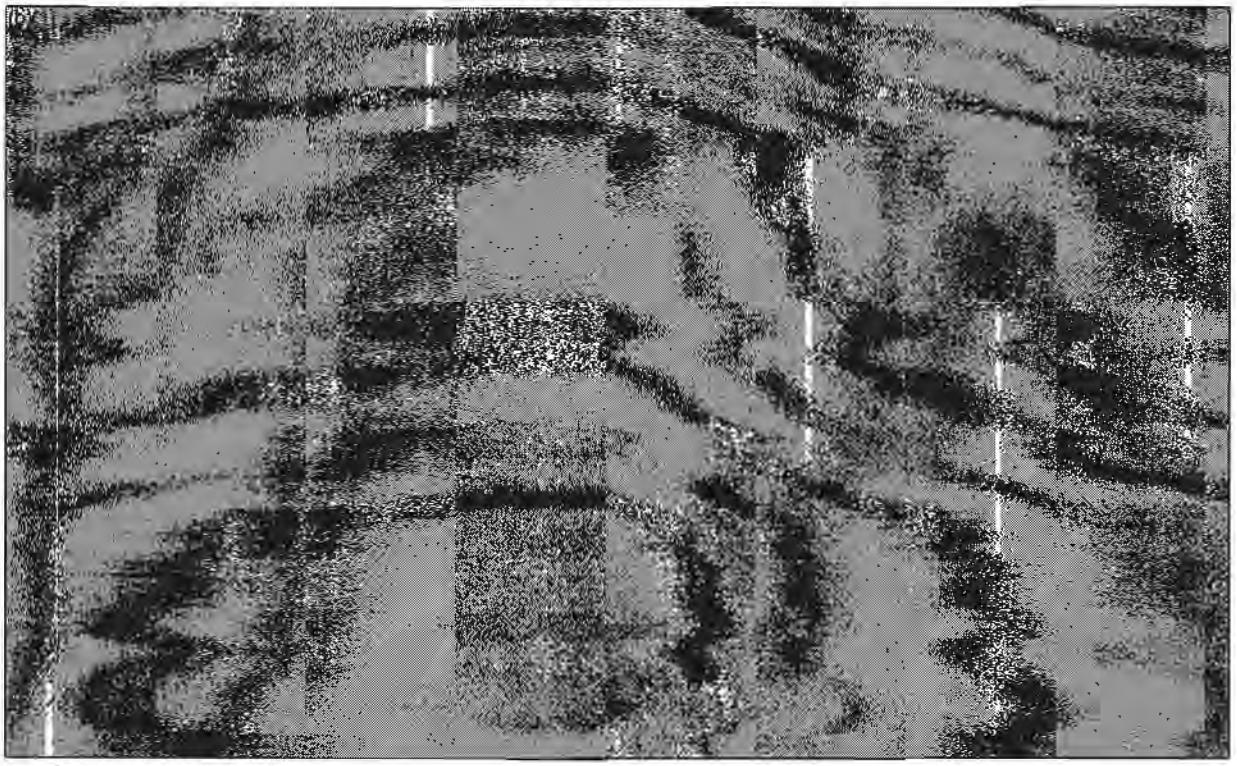


APPENDIX G

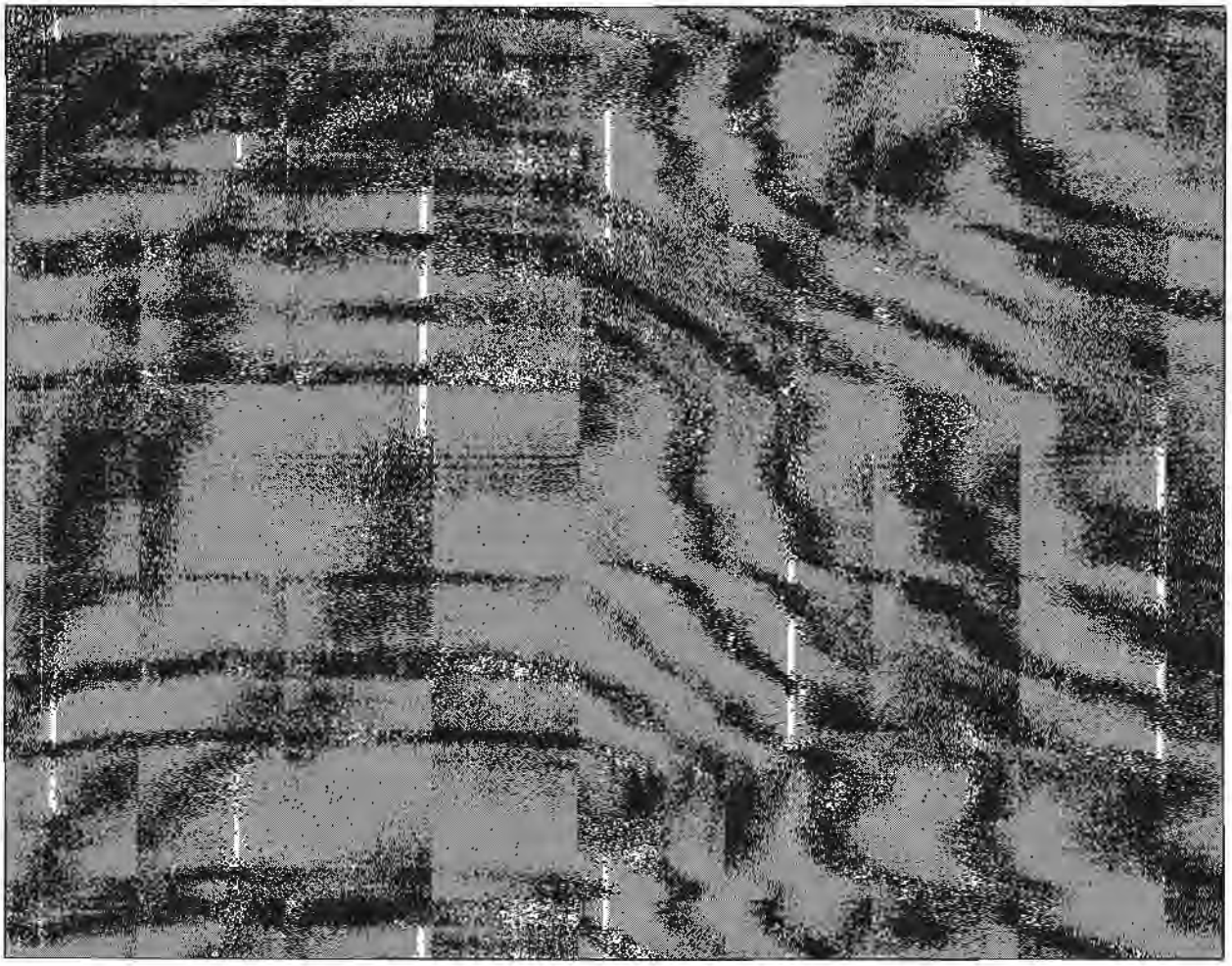
(U) INEFFECTIVE SUPPLY CHAIN MANAGEMENT



(U) In addition to the changes in the method of component management discussed in Appendix J, much of the centralized oversight of sensitive missile components was reduced or eliminated which ultimately reduced the visibility of, and sensitivity to, the day-to-day management of classified components. As discussed elsewhere in this report, the Air Force also stopped maintaining centralized training products for Integrated Material Managers (IMMs). Further, responsibility for the individual supply chain management applications was reassigned from the San Antonio Air Logistics Center (ALCs) to the three remaining ALCs.



Derived from: Multiple Sources
Formerly Restricted Data – "Unauthorized disclosure subject to administrative and criminal sanctions. Handle as RESTRICTED DATA in foreign dissemination. Section 144.b, Atomic Energy Act, 1954

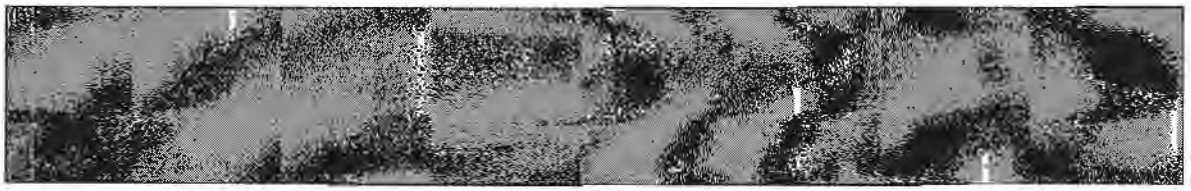


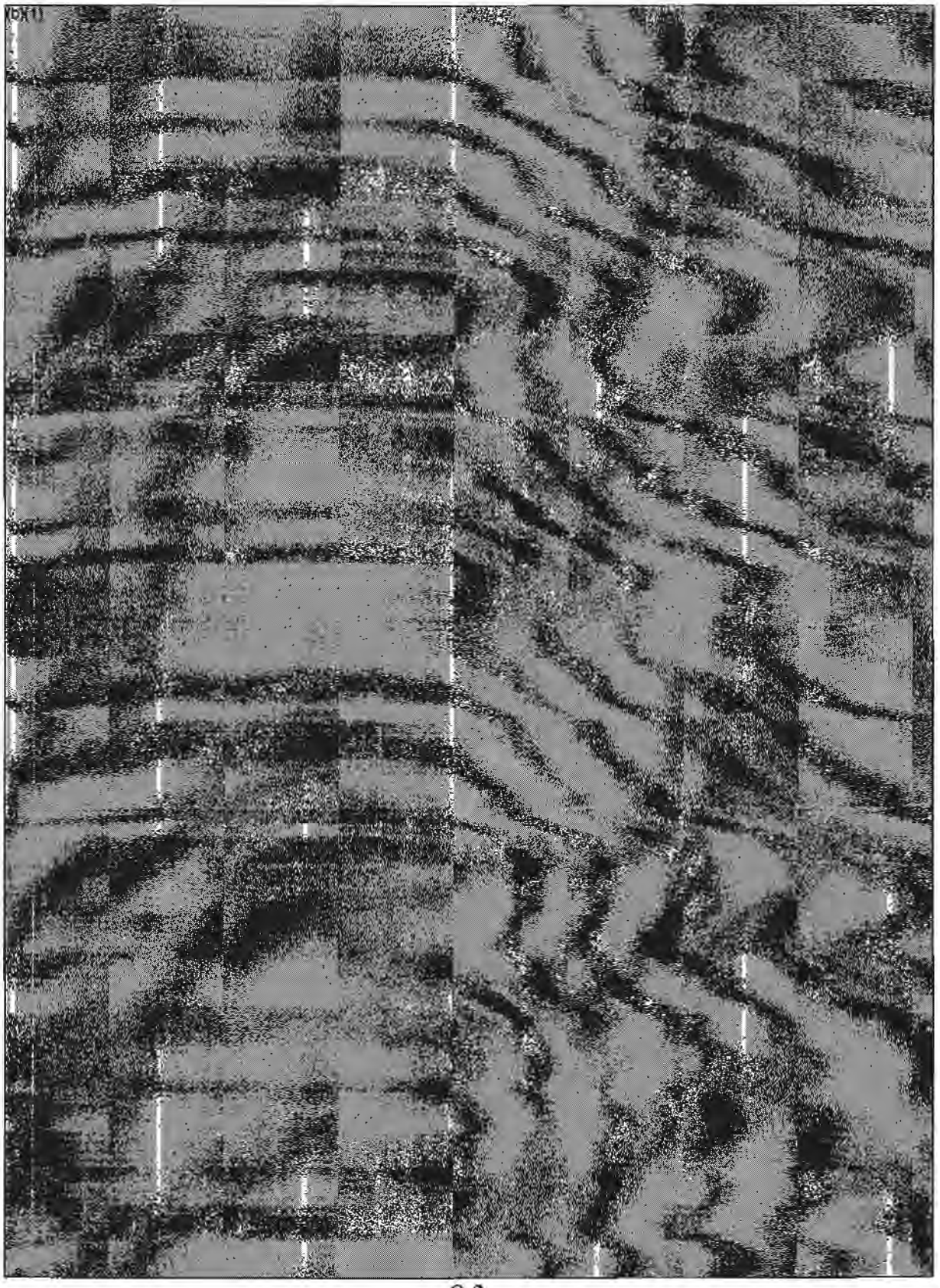
(5) (U) DLA required all Defense Distribution Center (DDC) activities to:

(a) (U) Complete and send a DLA Form 27 (Classified Document Receipt), or equivalent, to the receiving activity for shipments of classified components;

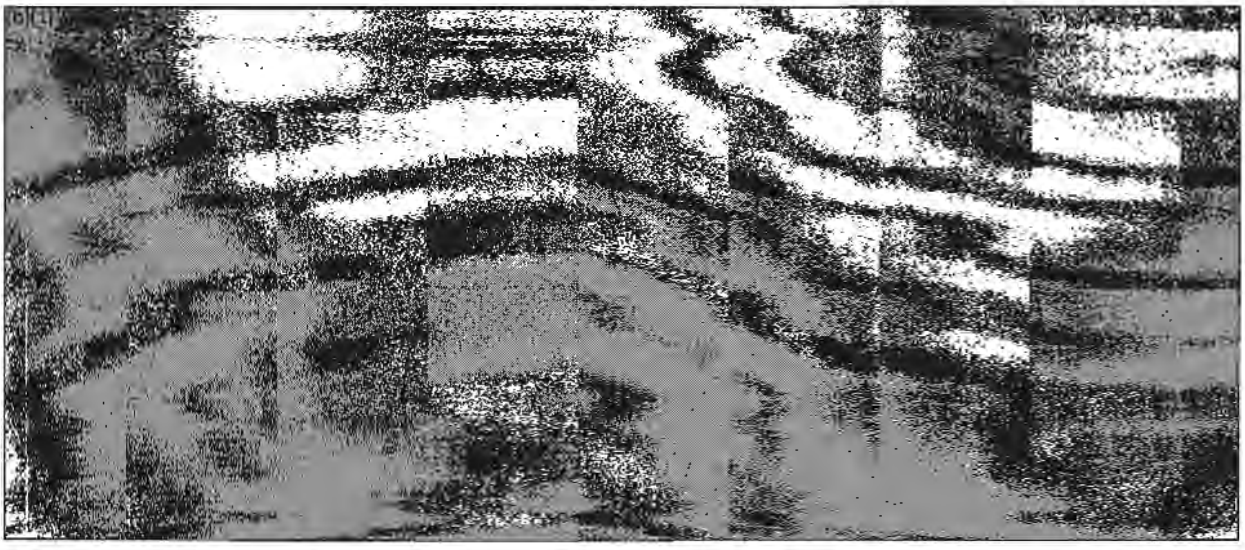
(b) (U) Sign (or complete if not provided by the shipping activity) DLA Form 27, or equivalent, when receiving classified components and send a copy back to the shipping activity;

(c) (U) Maintain copies of these completed documents on file for two years.





Appendix G: Ineffective Supply Chain Management



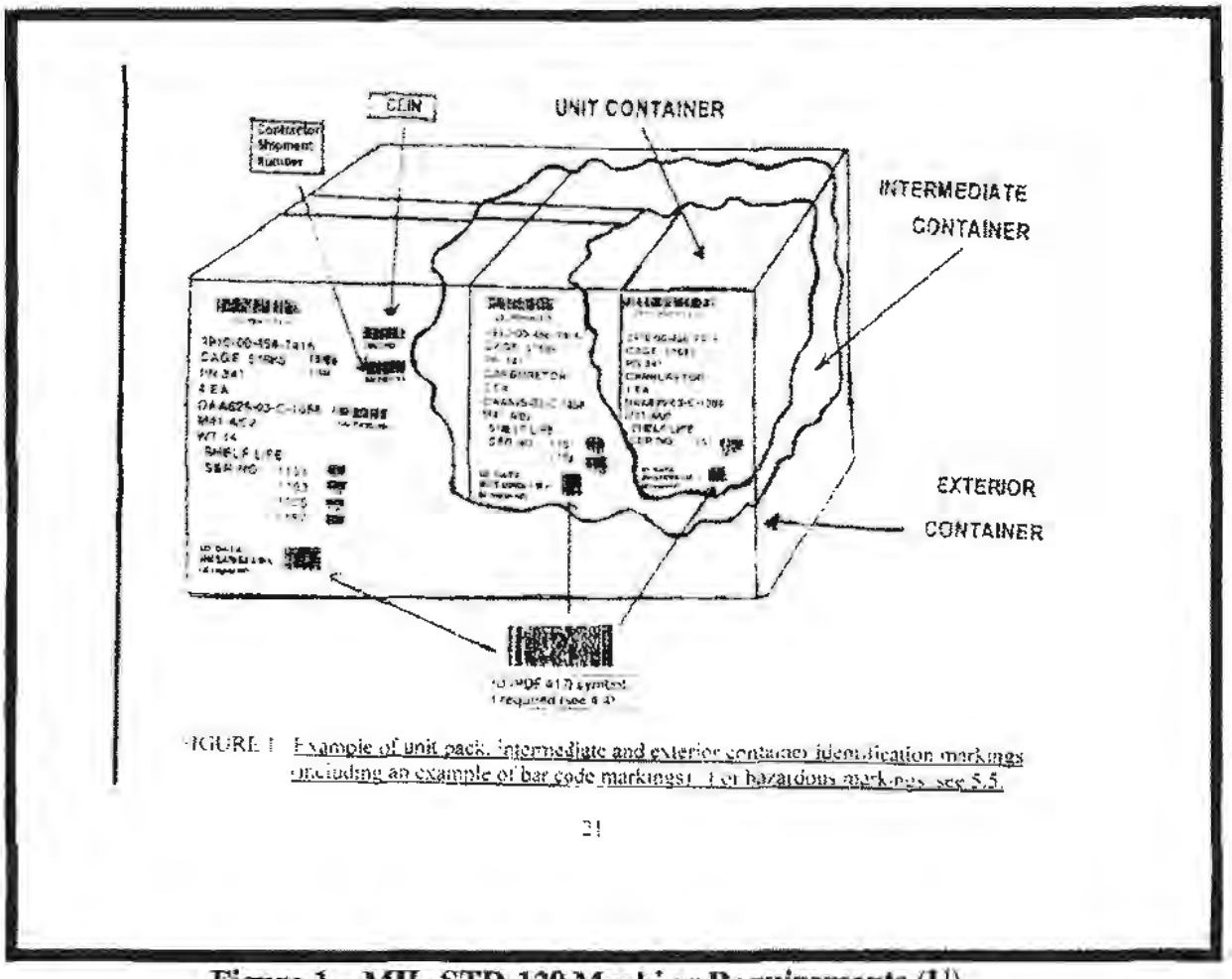
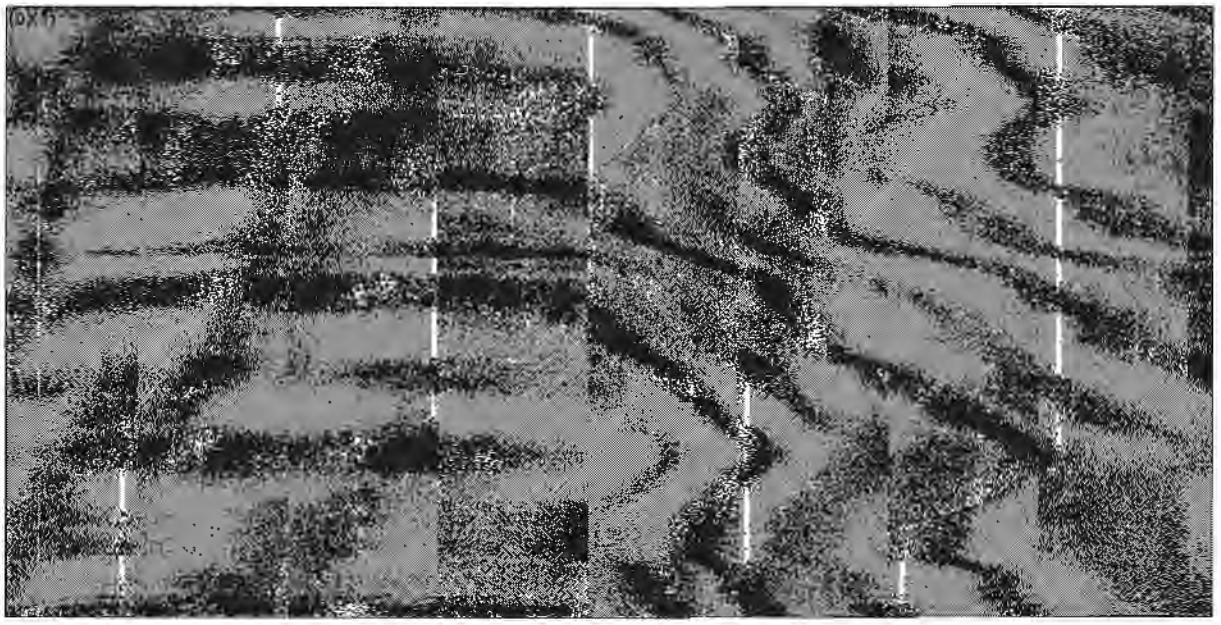


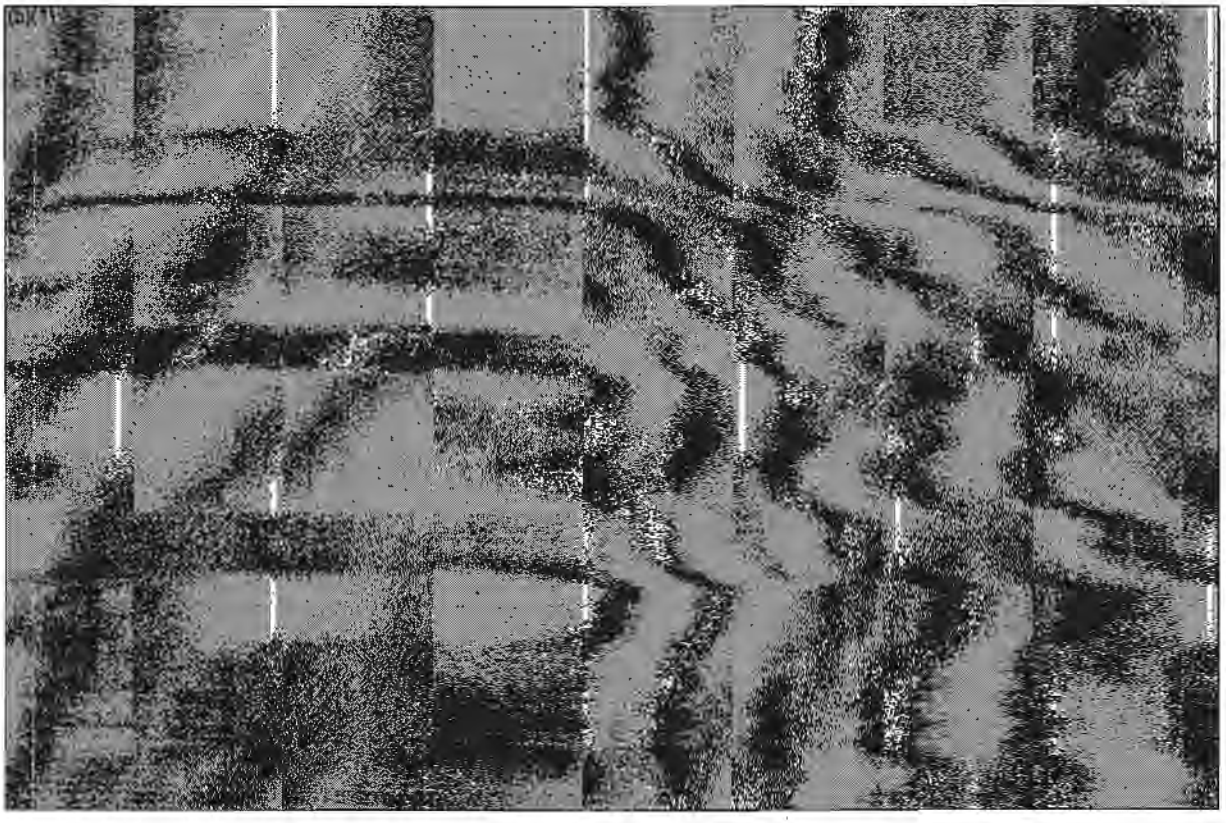
FIGURE 1. Example of unit pack, intermediate and exterior container identification markings including an example of bar code markings. For hazardous markings, see 5.5.

21

Figure 1 – MIL-STD-129 Marking Requirements (U)

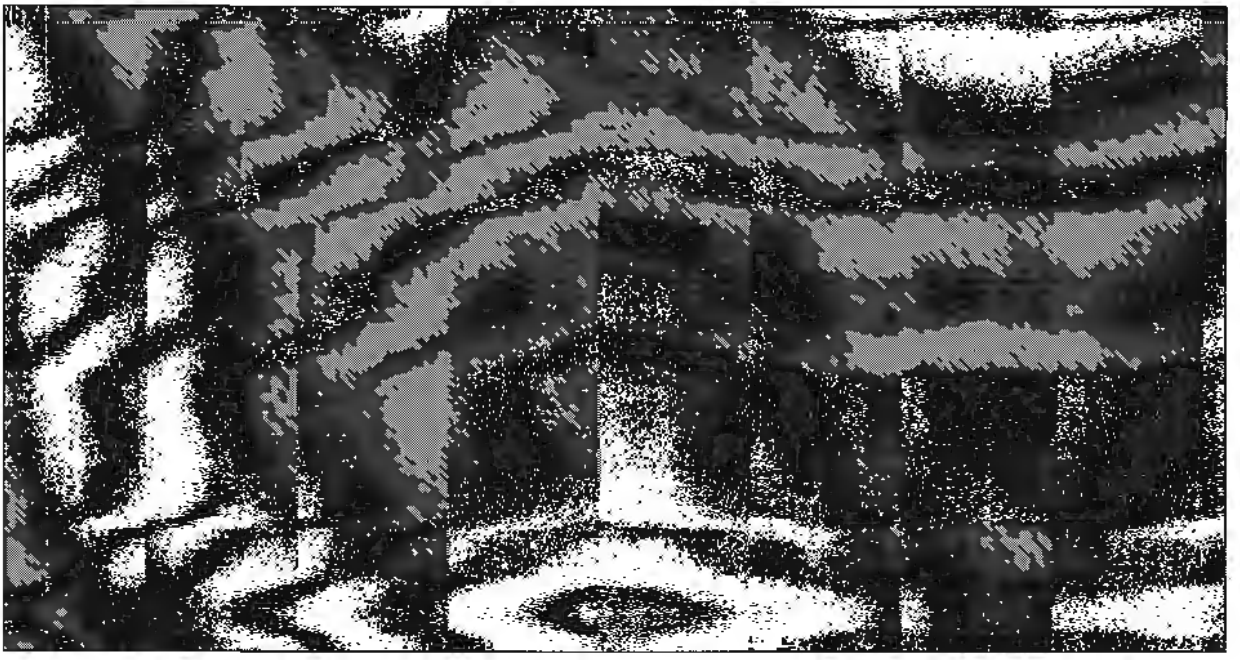


b. (U) Receipt and Stowage Deficiencies Increased the Risk of Improperly Controlling Classified Material: Non-compliance with existing receipt and stowage requirements increased the risk of improperly controlling classified material and indicate more systemic problems. For example:



(3) (U) Air Force activities used inconsistent methods to obtain MSDS data which dilutes the ability to update and maintain accurate MSDS information. Additionally, contrary to training (SWARM Receiving 7.1 Unit 6), the DDHU contractor was not validating that the Hazardous Material Information Resource System (HMIRS) contained the necessary MSDS information for incoming hazardous material shipments. The new DLA/EG&G contract, effective 1 February 2008, required receiving custodians to review HMIRS for hazardous items. If the required hazardous control information is not available in HMIRS, the receiving custodian was required to submit a feedback form to the Defense Supply Center Richmond to have the necessary MSDS information loaded into HMIRS. The Investigation Team identified that EG&G is now reviewing HMIRS for hazardous material shipments. However, EG&G would not conduct an HMIRS evaluation for the MK-12 forward section assemblies because they are not identified as hazardous in the Air Force cataloging system. If this process had been in effect earlier and the MK-12 forward section assembly was identified as hazardous, an MSDS specific to the MK-12 forward section assembly would have been available for shipment of the four MK-12 forward section assemblies in March 2005.

(4) *(U) Deficiencies in Report of Shipments (REPSHIP):*



(c) *(U) DDHU's file of REPSHIPS for pending classified receipts* was not organized by date or auditable. Further, it was not purged to reflect shipment arrivals (see Figure 2 below). The condition of the file limited its effectiveness in confirming receipt of and maintaining control over classified shipments.

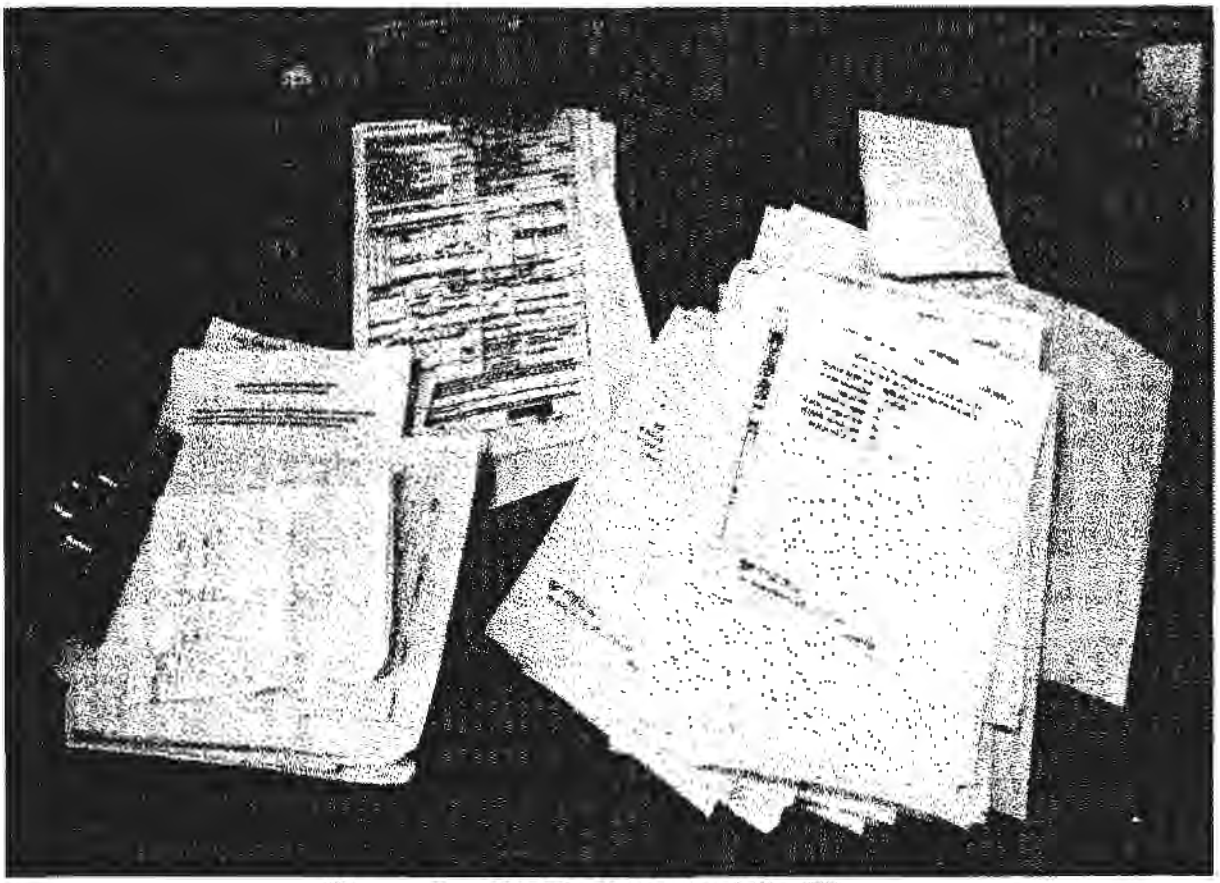
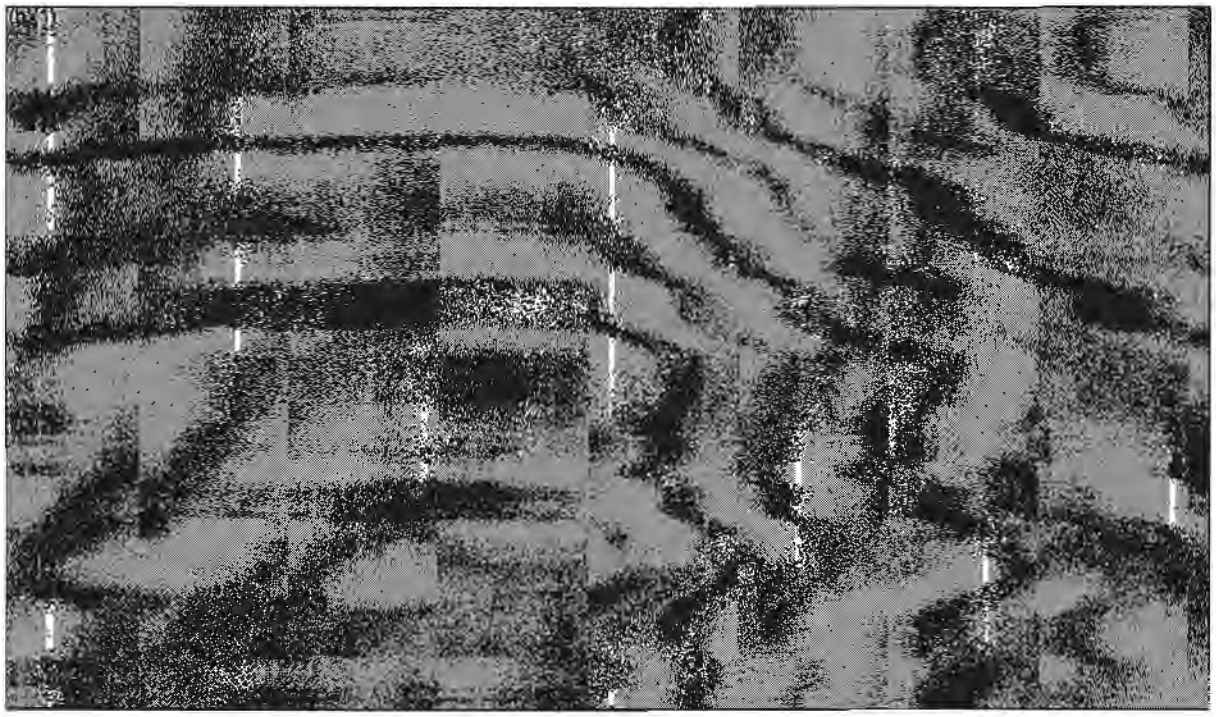
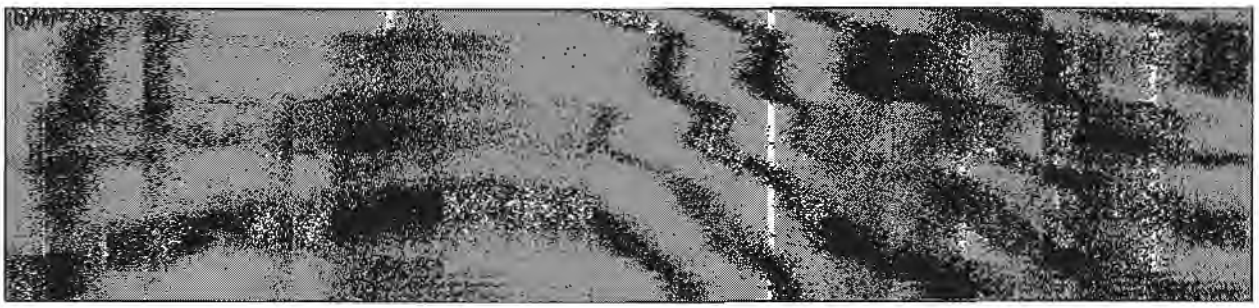
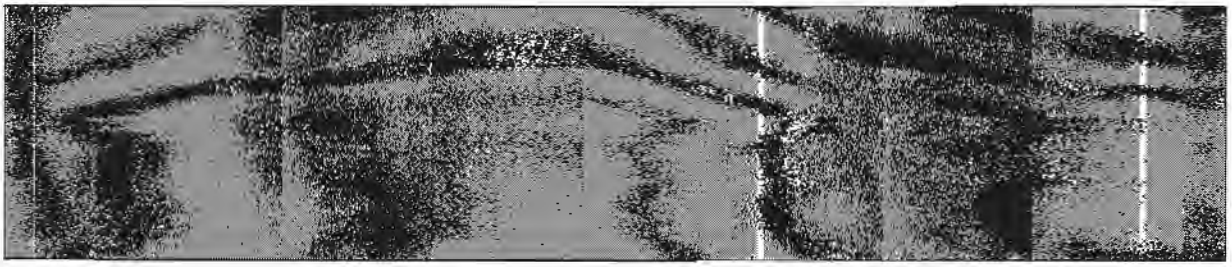


Figure 2 – DDHU REPSHIP File (U)





(7) (U) EG&G's advertised error rate of one classified shipment error per 180,000 issue transactions was based on the number of valid SDRs received by DDHU from other activities to document an error in shipment of classified material. In 2005, the Air Force Audit Agency (AFAA) determined Air Force bases did not submit SDRs 61% of the time they were required (F2006-0003-FC4000). Given the high rate of non-compliance with respect to submission of SDRs and additional similar findings by the Investigation Team, the validity and usefulness of this metric is suspect.



(a) (U) The Investigation Team determined that the 341st LRS at Malmstrom AFB did not conduct semi-annual Weapons Storage Area (WSA) supply point inventories as required by AFMAN 23-110, Volume 1, Part 1, Chapter 6, Paragraph 6.2.6. In one case, the 341st LRS conducted the required inventory but failed to document the inventory in Standard Base Supply System (SBSS).

(b) (U) Contrary to paragraph 3-107.b of DOD 4145.19-R-1 (Storage and Materials Handling), the Investigation Team identified that items stored in the warehouse and in the WSA at Malmstrom AFB had old markings present on the exterior packaging which hindered the ability of supply personnel to perform accurate inventories. The Investigation Team also reviewed labeling used on the MK-12 forward section assembly reusable shipping containers stored at DDHU and found additional containers with outdated markings on the exterior containers. These outdated markings provided misleading and confusing information (See Figure 3 below). The practice of reusing shipping containers without obliterating previous markings that are no longer applicable can lead to confusion and misidentification of items.

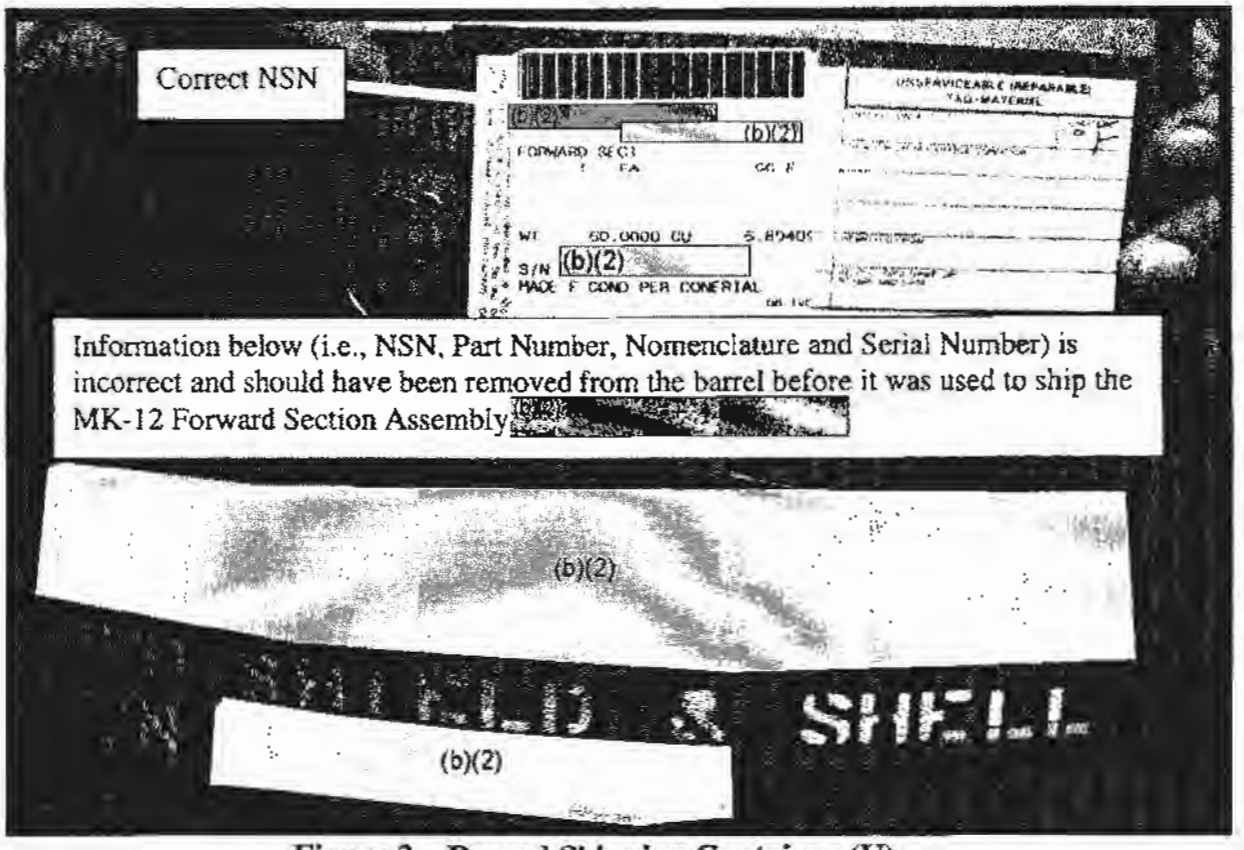
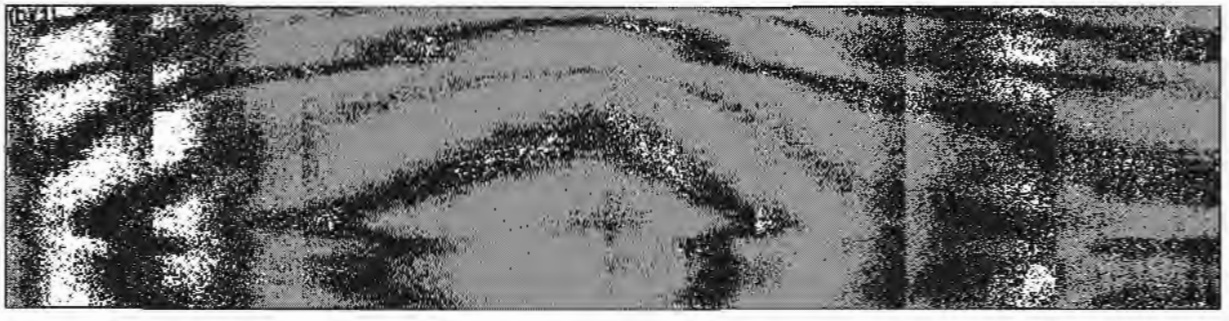


Figure 3 – Reused Shipping Container (U)

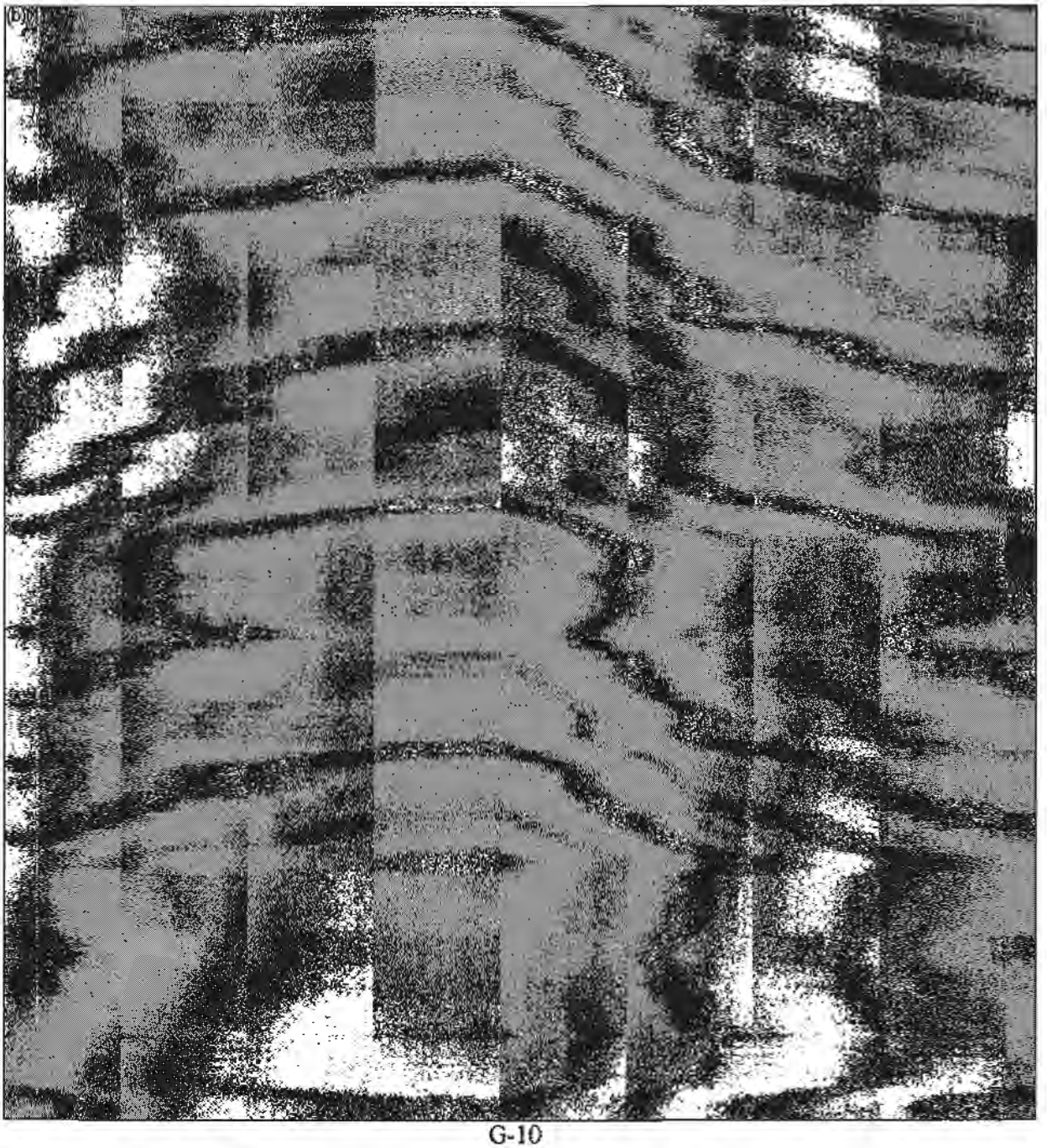
(c) (U) The Investigation Team also identified additional examples of storage containers stored at DDHU with confusing markings. For example:

1) (U) MK-12 forward section assemblies in shipping containers were labeled with the NSN for the empty barrel and/or the special packaging instruction identification number (which is similar in format to an NSN).



4) (U) The Special Packaging Instruction (SPI) for the MK-12 forward section assembly required the SPI number to be printed on the outside of the container contrary to AFI 24-203 Paragraph 8.10.16.4 which states, "Do not mark SPI numbers on classified shipments."

(d) (U) Several missile component kits were not catalogued to facilitate easy identification of the assemblies. The complex method of cataloguing required a degree of technical understanding, beyond the training provided to receiving custodians, to accurately receive and inventory the components. Additionally, identifying both individual component and assembly or kit NSNs of a single component required a degree of technical knowledge to properly identify, warehouse, and control these components. As a result, effective material control of the components was compromised. For example:



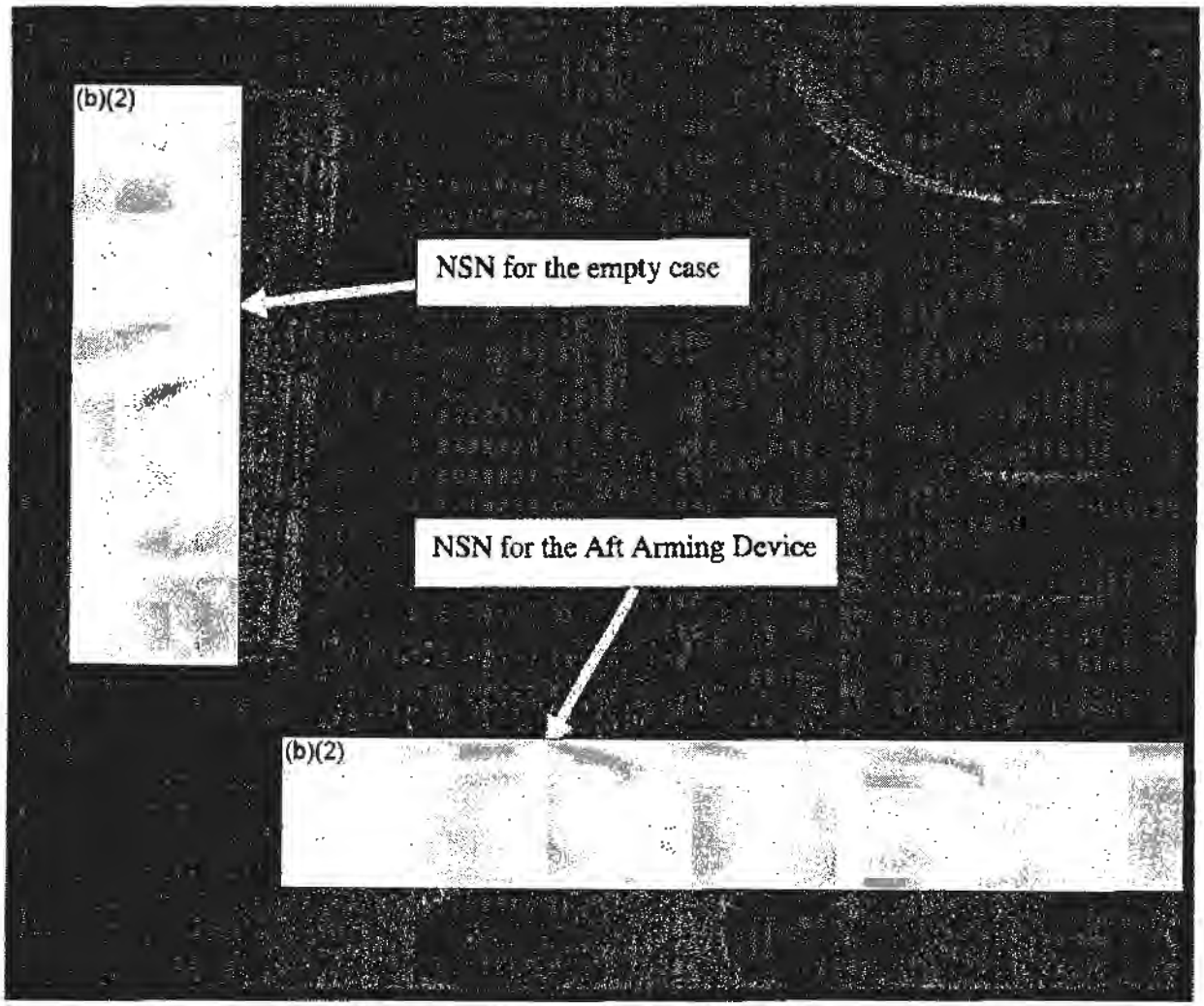
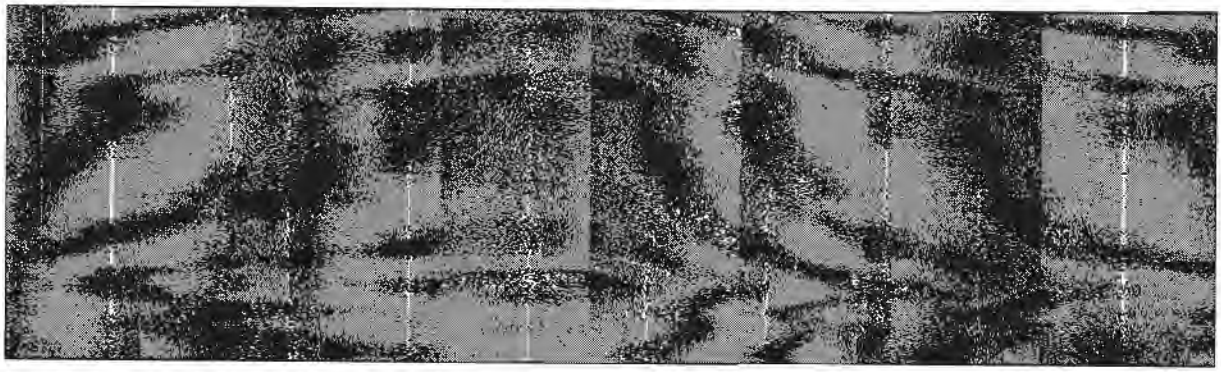


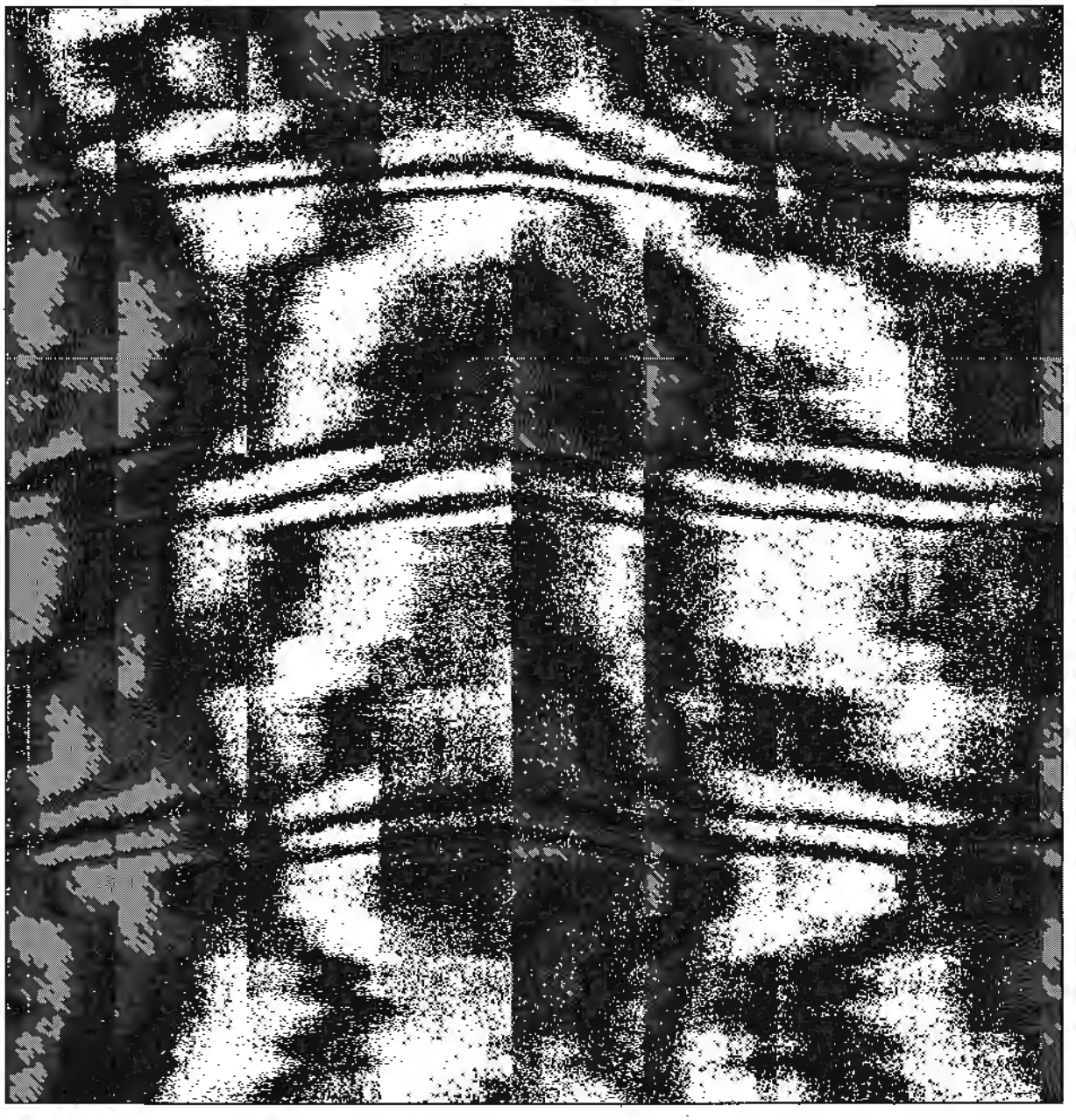
Figure 4 – Aft Arming Device (U)

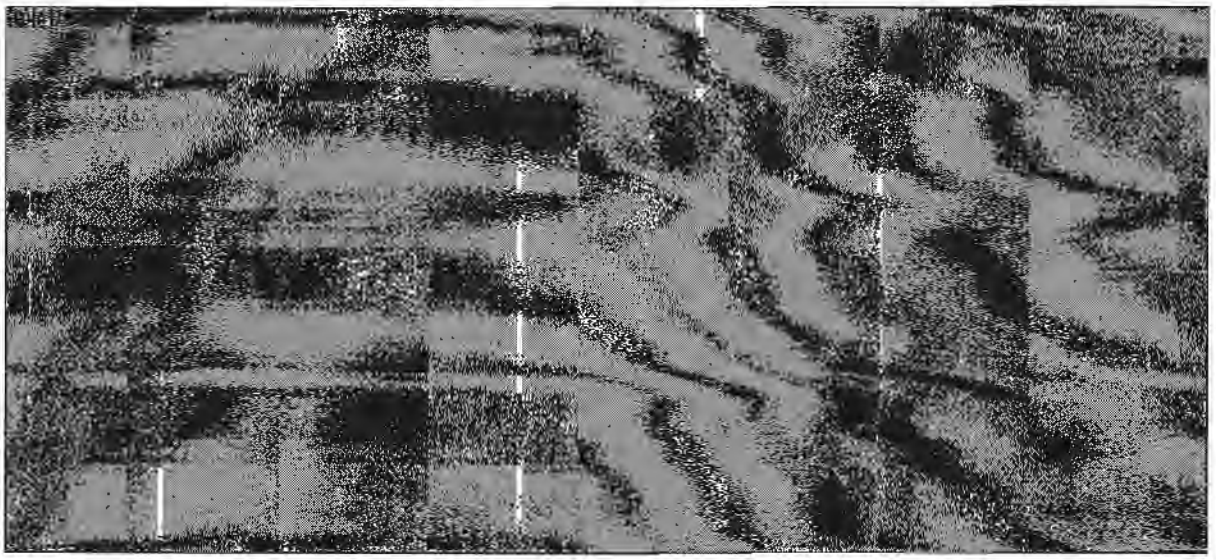


a. (U) Integrated Material Management Deficiencies include:

(1) (U) As a result of Defense Management Report Decision 902 in 1995, the Air Force and DLA combined Hill AFB and Ogden Defense Distribution Depot shipping, receiving and warehousing functions. Prior to the consolidation, the Air

Force used a single Department of Defense Activity Address Code (DODAAC) of "FB2029" (Ogden Air Logistics Center (OO-ALC) Central Receiving) for all shipments, including classified items. After the consolidation, DLA designated DODAAC "SW3210" for unclassified receiving and DODAAC "SW3220" for classified receiving. However, the IMMs for the forward section assembly and other similar components failed to update the Reparable Item Movement Control System (RIMCS) turn-in address from FB2029 to SW3220, contrary to AFMAN 23-110, Volume 3, Part 3, Chapter 28, Paragraph 28.11.3.





(6) (U) During discussions with the Investigation Team, AFMC/A4 staff identified the current item management process flow (see Figure 5 below).

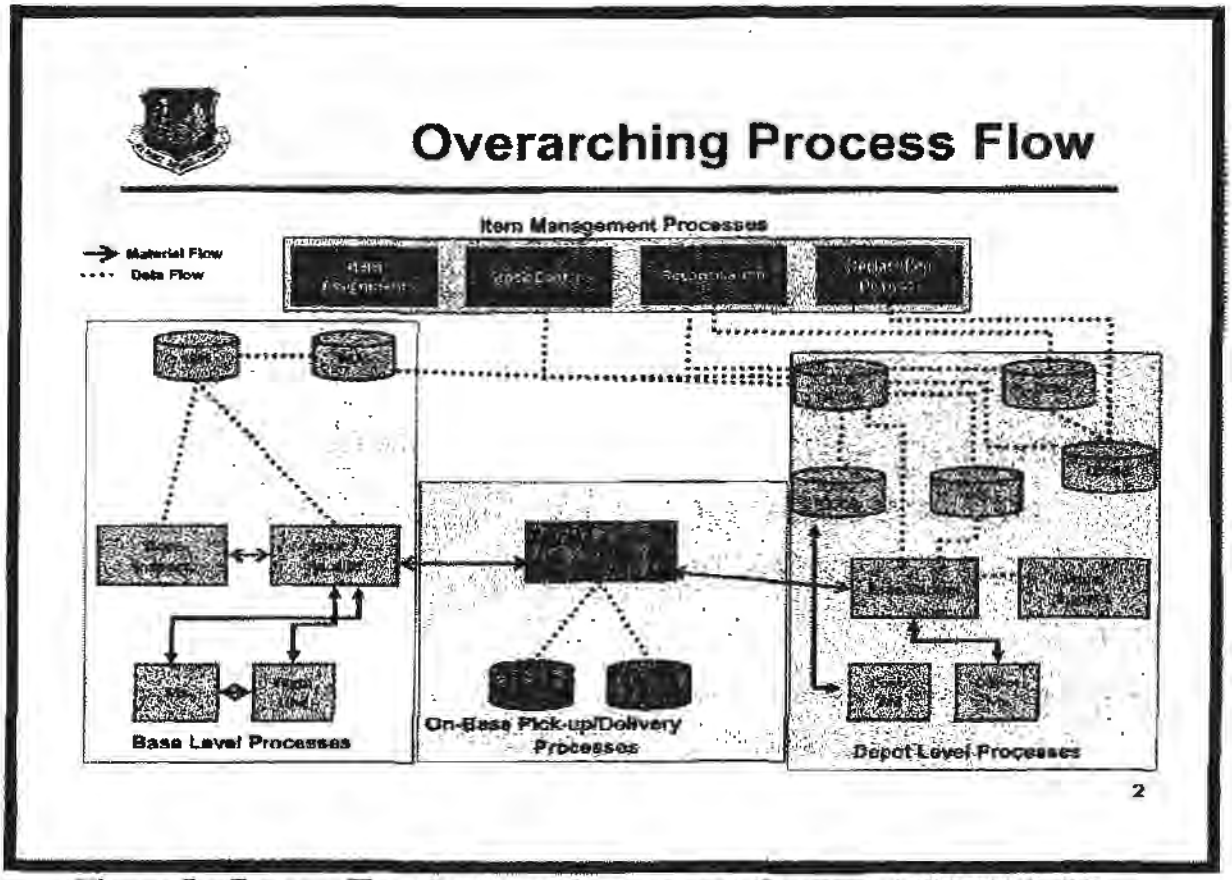


Figure 5 – Process Flow for Item Management (Source: AFMC/A4) (U)

(a) (U) While Figure 5 depicts a relatively simple process flow, according to AFMC, the Air Force supply chain management system is a loosely knitted conglomeration of applications that were independently developed over time. As a result, the interfaces between these legacy applications are complex, difficult to maintain, and require an experienced IMM to use effectively (see Figure 6 below).

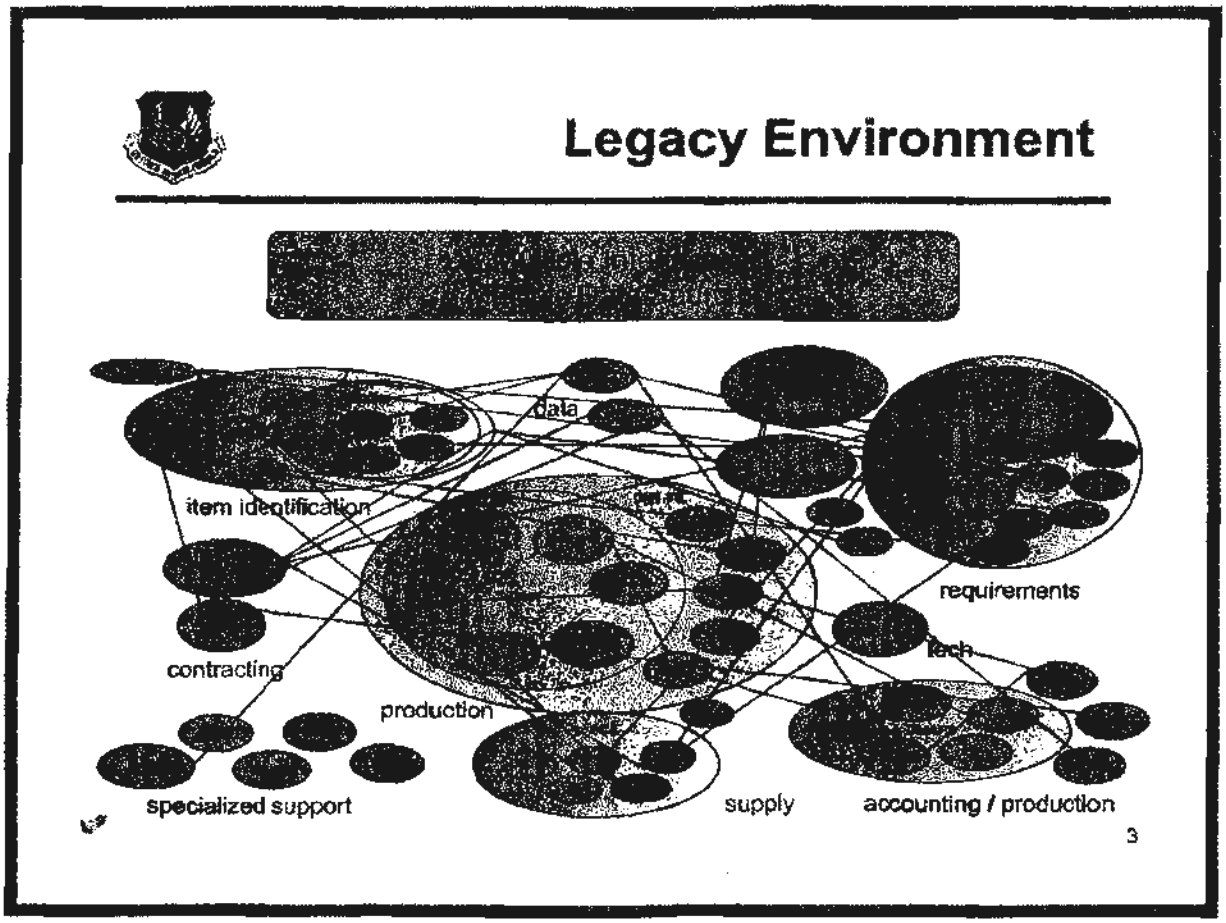


Figure 6 – Supply Chain Information Technology Systems (Source: AFMC/A4) (U)

(b) (U) The complexity of these applications and their interfaces necessitates comprehensive IMM training to ensure effective execution of supply chain management responsibilities. Prior to the closure of Kelly AFB in 1999, the majority of these supply chain management applications were maintained by the ALC at Kelly AFB. Consequently, Kelly AFB also maintained standardized training for these applications and their interfaces.

(c) (U) Discussions with AFMC/A4 staff identified that, subsequent to the closure of Kelly AFB, the Air Force supply chain management applications and associated training were reassigned to the three remaining ALCs. Additionally,

AFMC/A4 staff identified that as a result of the closure of Kelly AFB, there was no single Air Force activity responsible for standard IMM training. Training for IMMs was inadequate and inconsistent, with a large amount of the training conducted on-the-job.

(d) (U) Based on recent AFMC identification of the need for more standardized IMM training, AFMC is taking the initiative to standardize training under the Global Logistics Support Center (GLSC) initiative (see Figure 7 below). However, since the 526th ICBM Systems Group IMMs are not scheduled to transition to the GLSC until 2011, the 526th ICBM Systems Group and AFMC are now developing a training program for the 526th ICBM System Group IMMs that utilizes existing training plans and products from other commands. Additionally, AFMC is evaluating earlier transfer of the 526th ICBM Systems Group IMMs to the GLSC.

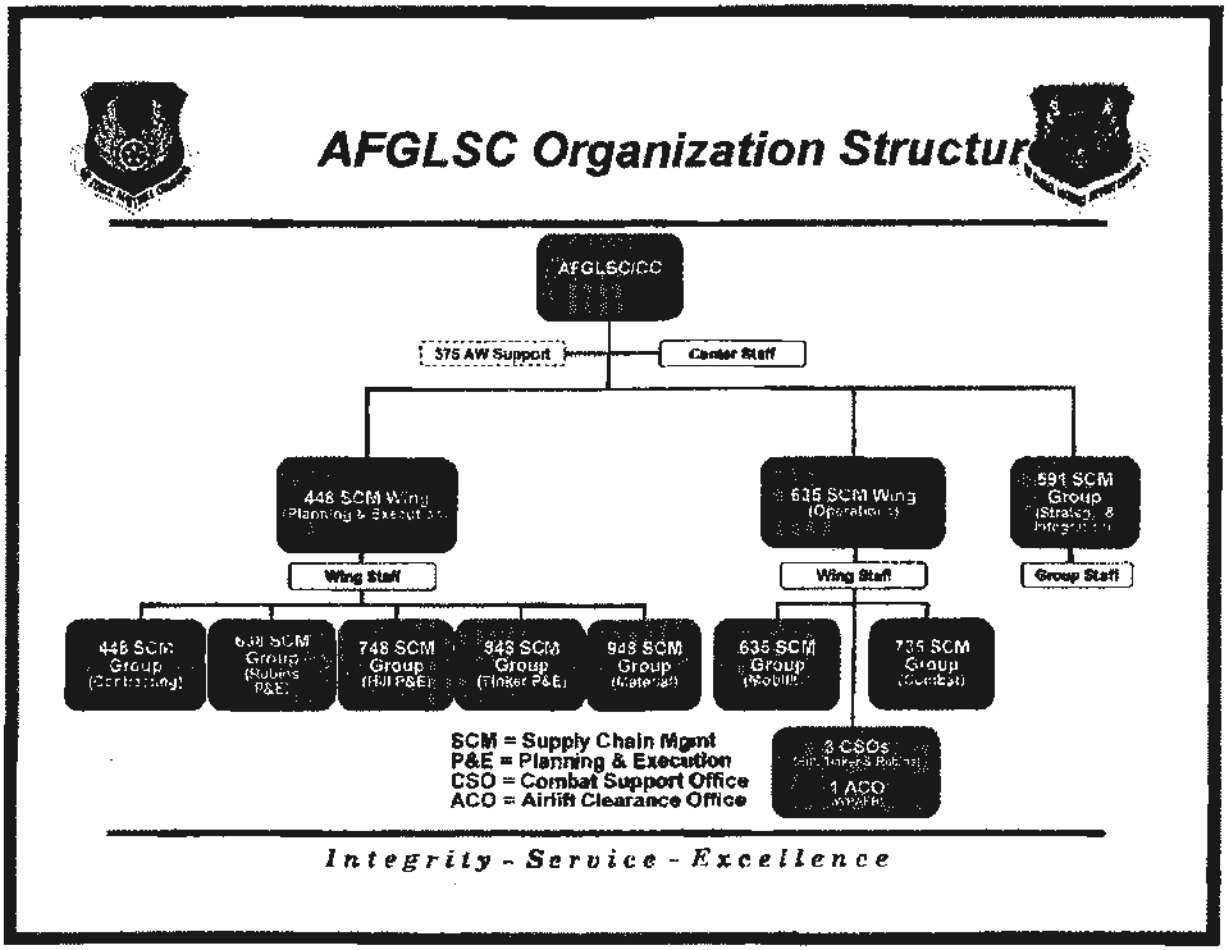
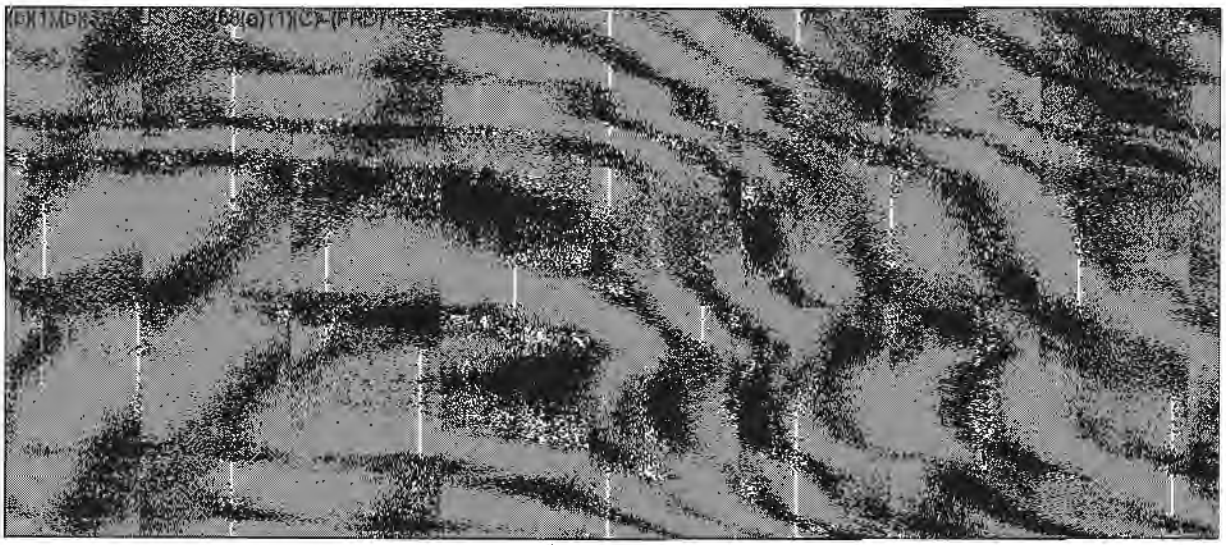


Figure 7 – Global Logistics Support Center (Source: AFMC/A4) (U)

b. (U) Information Technology System and Policy Manual Deficiencies:



(2) (U) DLA and Air Force activities conducted virtual material shipments of forward section assemblies to map each step of the associated processes. As a result of these virtual shipments, the DLA and Air Force team identified that D7A transactions (Record Of Issue) from SBSS were being rejected by the Defense Activity Addressing System Center (DAASC). Air Force personnel were required to manually correct and resubmit these transactions to establish an in-transit record in the Reparable Asset Management Process (RAMP) database.

(3) (U) In addition to IMM management of in-transit material and material tracking via the REPSHIP process, the generation of electronic receipt follow-up transactions for material not received is another key process for ensuring classified material is received and properly identified. Air Force and DLA supply chain management systems did not always generate electronic follow-up transactions and associated electronic follow-up response transactions as required by DOD 4140.1-R, DOD 4000.25-2-M and AFMAN 23-110.

(4) (U) Since February 2007, AFMC has issued numerous letters to provide revised policy related to their procurement planning system (D200A) that have not been incorporated into the applicable Air Force instructions. This practice was contrary to the requirements for revising and maintaining Air Force Instructions (i.e., Air Force Instruction 33-260 (Publications and Forms Management)).

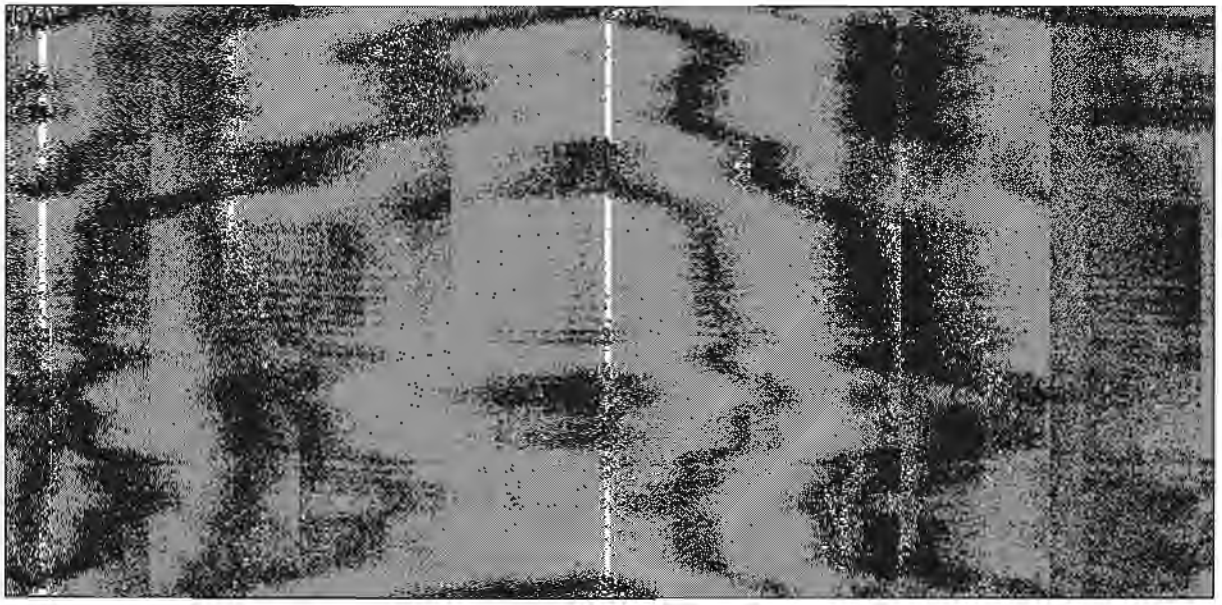
4. (U) **DLA Lack of Analysis and Response to Audit Findings and Inadequate Continuing Government Activity (CGA) Oversight Hamper Improvement in Supply Chain Execution**: The AFAA, DOD Inspector General (DOD IG), and internal DDC Security Assist Visits identified several of the problems discussed

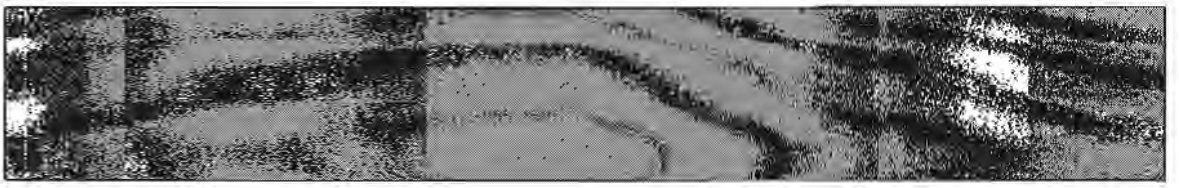
above, but DDHU and DLA did not identify the causes of these problems and therefore did not develop effective corrective actions for the more systemic issues. As a result, repeat errors continue. Additionally, the Investigation Team determined that CGA oversight of EG&G was not adequate to identify systemic problems and did not effectively trend findings to drive process improvement.

a. (U) Lack of Analysis and Response to Audit Findings Include:

(1) (U) AFAA report of audit F2005-0035-FCI000 (13 July 2005) identified that EG&G personnel were not submitting SDRs when required. The corrective action identified was for the Air Force/DLA Partnership Agreement Council to request that DLA comply with procedures to submit SDRs. As discussed above, the Investigation Team identified that EG&G is still not submitting SDRs when required.

b. (U) Ineffective CGA Oversight Examples Included:





APPENDIX H

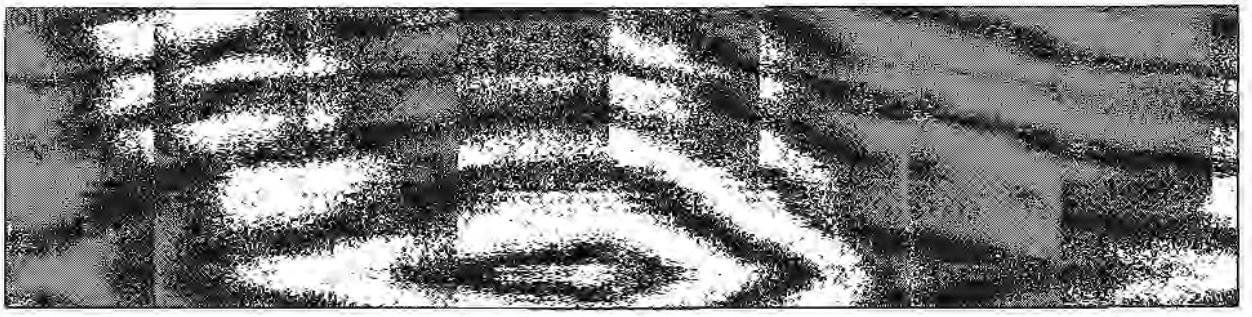
(U) MAINTENANCE AND QUALITY ASSURANCE PRACTICES AND PROGRAMS

1. (U) Maintenance and Quality Assurance Practices and Programs: The Investigation Team performed a detailed review of maintenance practices and programs at the 309th Missile Maintenance Group, Hill Air Force Base (AFB), Ogden, Utah; the 90th Space Wing, F.E. Warren AFB, Cheyenne, Wyoming; the 91st Space Wing and the 5th Bomb Wing, Minot AFB, Minot, North Dakota; and the 341st Space Wing, Malmstrom AFB, Great Falls, Montana. The Investigation Team reviewed work execution and compliance with technical orders, engineering direction, material control, supervisor performance, facility conditions, quality assurance inspections and corrective action programs. A number of weaknesses were identified in each area.

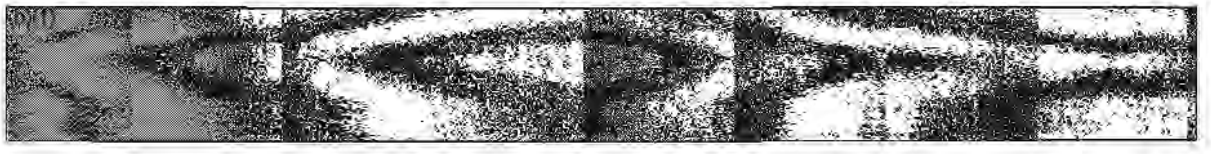
a. (U) Review of 309th Missile Maintenance Group, Hill AFB: Investigation Team review of material control and maintenance practices associated with the MK-12 and MK-12A forward section assemblies identified significant weaknesses with the management of the isothermal room, engineering direction, procedural compliance, and material handling practices. In response to the Investigation Team's findings, the Air Force conducted a "Red Team" review from 13 to 19 April 2008 of the 309th Missile Maintenance Group and the 526th ICBM Systems Group. The Air Force review, summarized in section 1.a.(5), confirmed the findings of the Investigation Team, identified additional deficiencies, and provided specific recommendations.

(1) (U) Isothermal Room Maintenance and Upkeep: The isothermal room was moved from San Antonio-Air Logistics Center in 1998 with established temperature and humidity controls for storage and conditioning of Service STAR (Select, Test, Assess and Report) Program (SSP) assets and "aging and surveillance components" (A&S). When initially established, the room was required to be manned. Subsequently in 1999, the isothermal room was turned over to the 309th Missile Maintenance Group. Following turnover, the room was locked and controlled by the 309th Missile Maintenance Group scheduler. Over several years, the controls on the isothermal room have degraded. Items have accumulated in the isothermal room that are not part of SSP or A&S programs in violation of the Depot Maintenance Project Directive (PD B-8-00-2454). Although responsible for the testing program, 526th ICBM Systems Group personnel did not intervene to ensure this room was maintained for its originally designed purpose per their project directive. The Investigation Team conducted a review of the current maintenance and upkeep of the isothermal room and

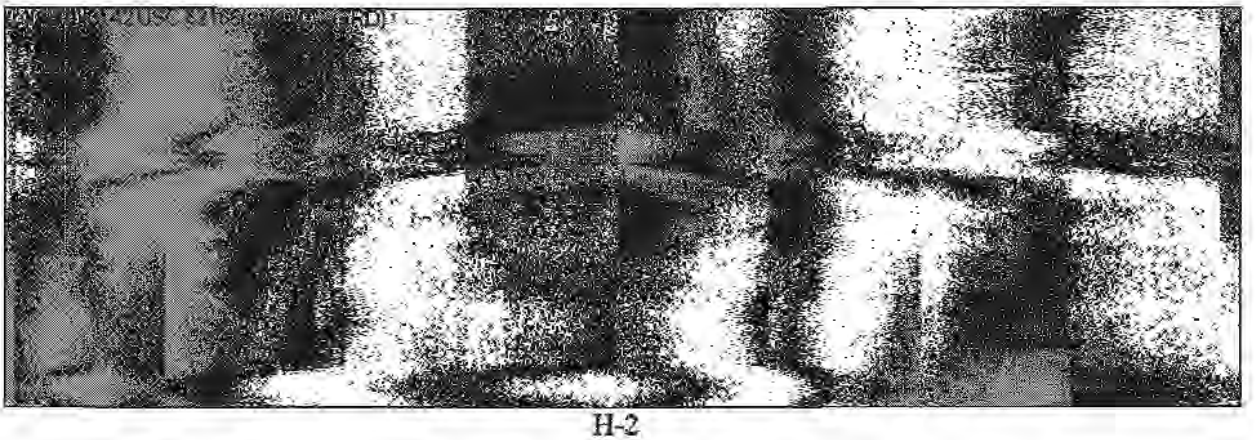
identified a number of deficiencies with environmental conditions and control, storage of components, and inventory of assets. Each of these deficiencies violates PD B-8-00-2454. The Investigation Team reviewed the project directive provided for the room and associated deficiencies with the Chief Flight Engineer and the Quality Assurance (QA) Manager. Specific deficiencies include:

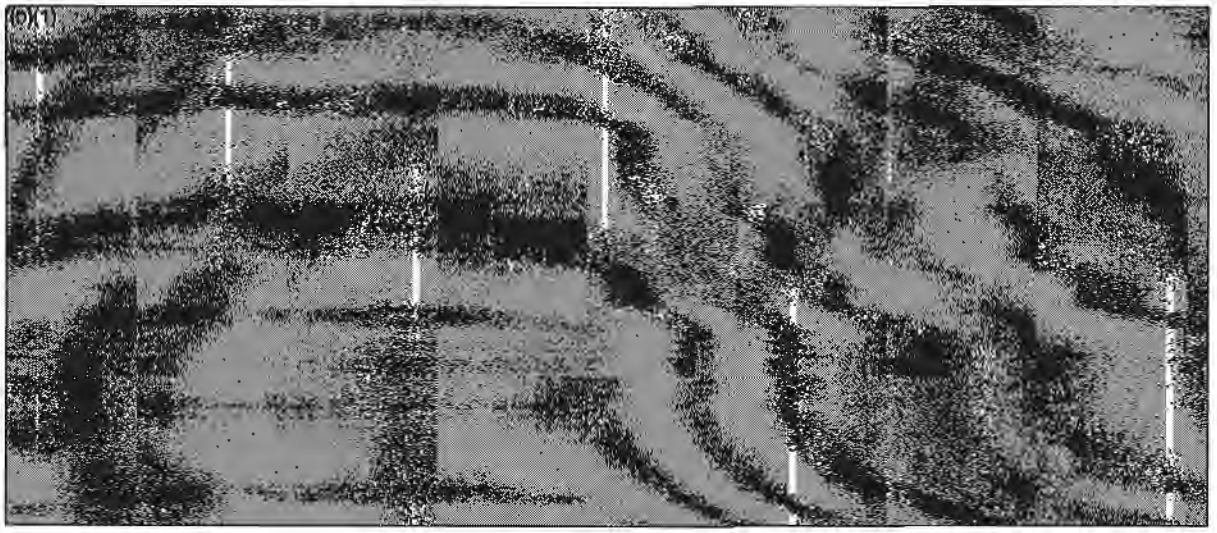


(b) (U) The room was not maintained in good housekeeping order as required. Specifically, test samples, storage racks, and the floor were dirty contrary to the project directive which requires a daily cleaning of these items. Additionally, the Investigation Team identified several test samples which did not have their required dust caps or covers installed, and evidence of personnel eating in the room.



(2) (U) Compliance with Air Force Requirements: The Investigation Team reviewed the 309th Missile Maintenance Group compliance with Air Force instructions, Air Force Materiel Command Instructions, and Local Engineering Directives. The Investigation Team identified several examples where the governing instructions were not followed and, in some cases, were unknown to management. Specific examples include:



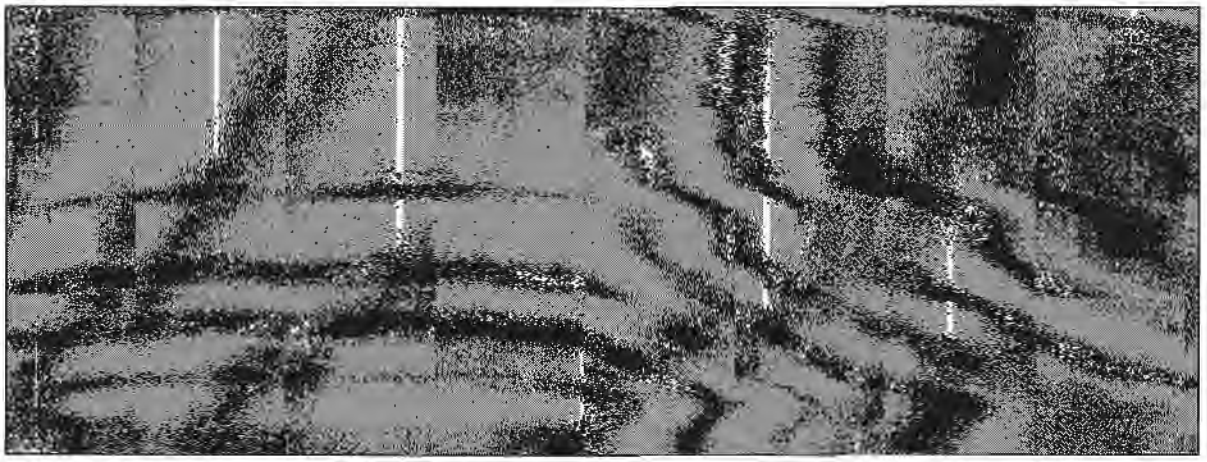


(b) (U) The Investigation Team reviewed several work control documents in use in the shop and identified that beyond referencing the applicable technical order, few specific paragraphs and steps are referenced as required by AFI 21-101 (Aircraft Equipment Maintenance Management).

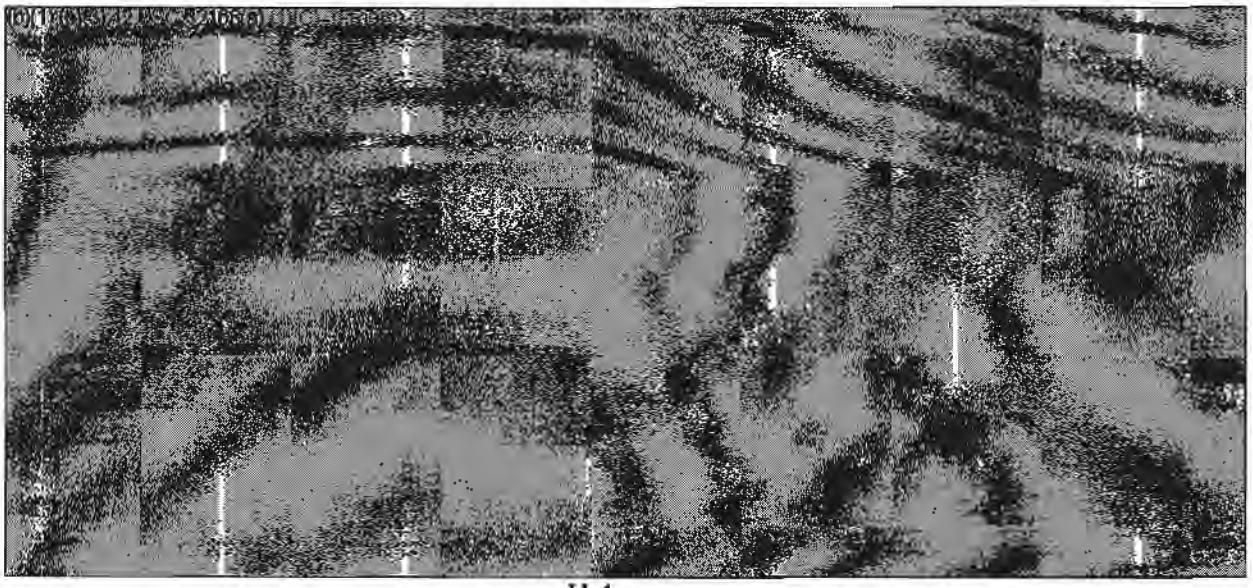
(c) (U) While observing the packaging steps for a MK-12A forward section assembly, the Quality Assurance Specialist (QAS) performed an additional inspection of the asset prior to closure. The base document did not address the need for the quality inspection to be performed for the packaging. The QAS stated that the additional check was deemed necessary due to past problems during this task. The need for an additional inspection step was not formally added to the work control document or to the technical order. Additionally, the QAS performed the quality inspection prior to the technician verifying the completion of the task which prevents an independent QA inspection of the work from occurring. AFI 21-101 (Aircraft and Equipment Maintenance) specifically states the quality assurance stamp is issued to the QAS to annotate required certification and verification of inspections on completed work control document tasks.

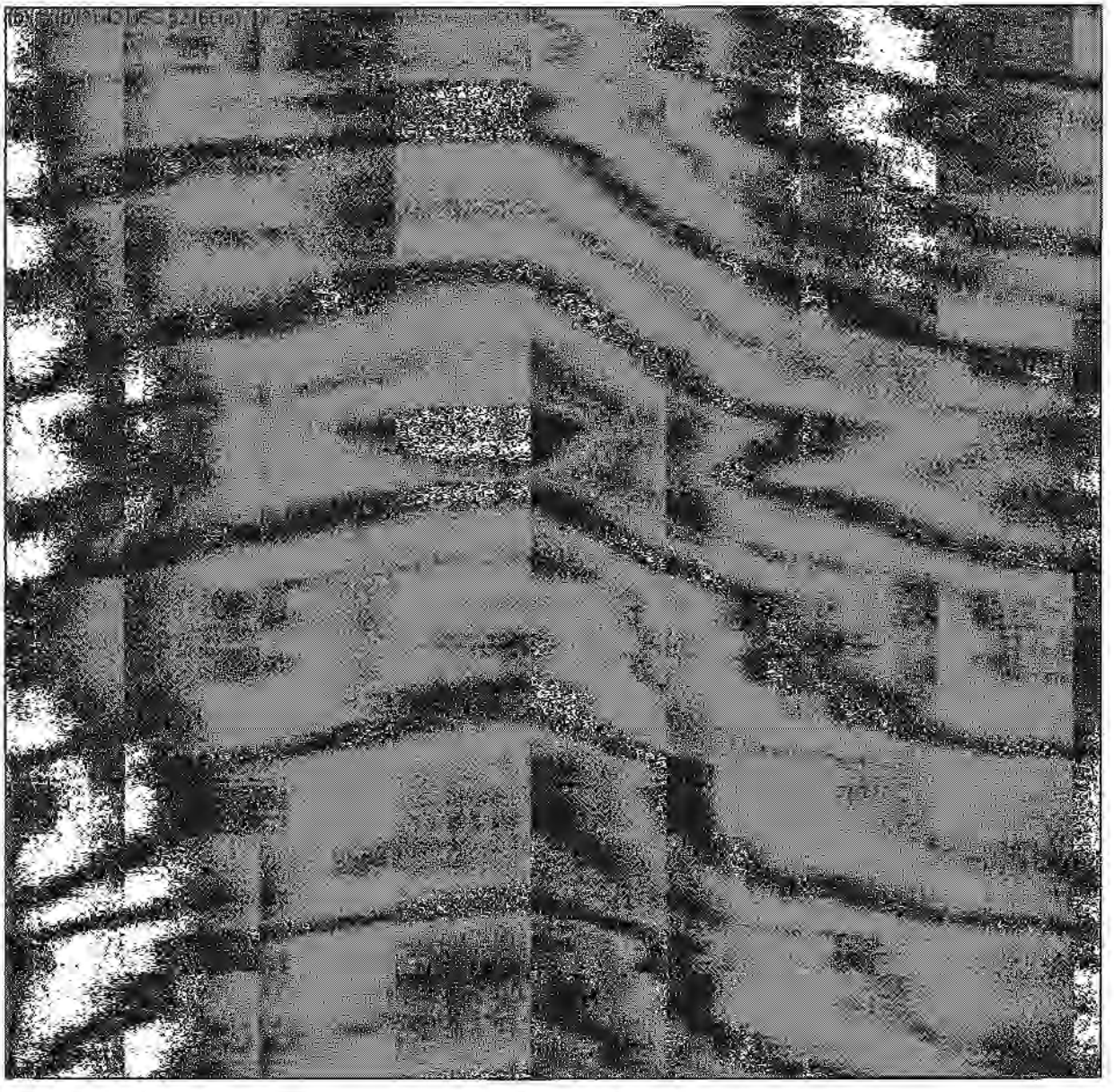
(d) (U) AFI 21-101 requires a work control document change request be issued when an addition, deletion, or correction is required. A change request was not issued to address when a step was no longer required in its applicable work control document.

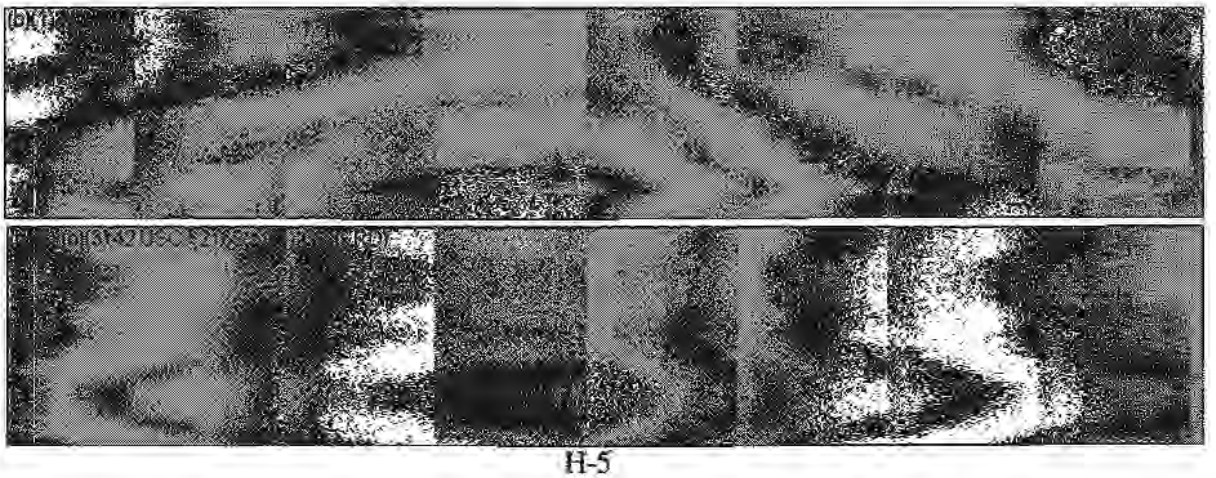
(e) (U) The Investigation Team reviewed the packaging requirements and completed documentation for MK-12 forward section assemblies with the QA manager for the 309th Missile Maintenance Group. The work control document for five MK-12 forward section assemblies completed in January 2005 incorrectly specified TO 11N-RV12-3-1 for packaging the forward section assemblies. The correct packaging instructions are contained in TO 11N-RV12-2.

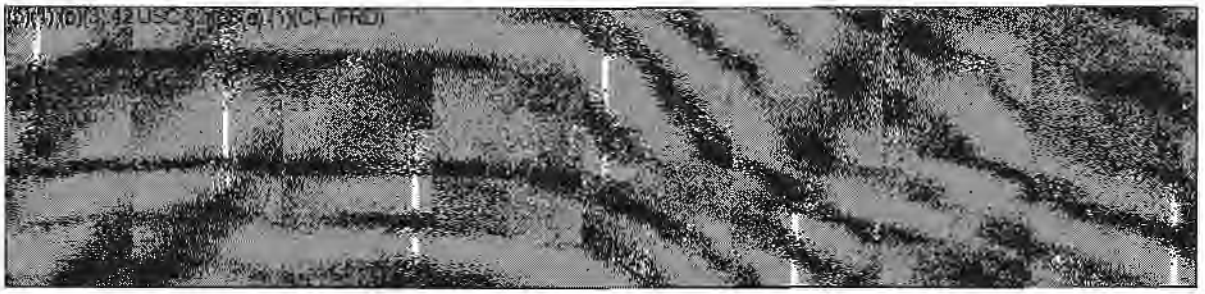


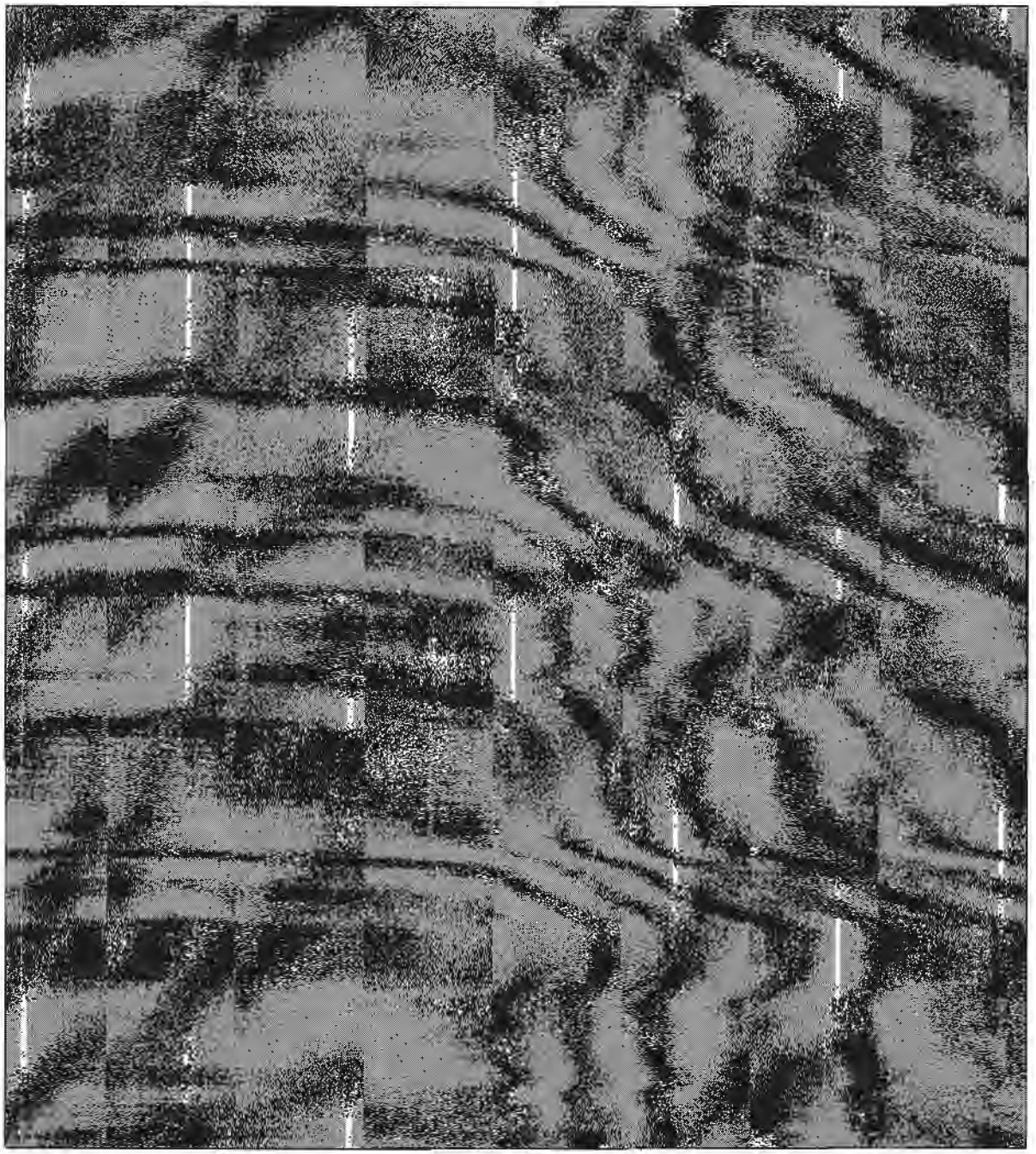
(g) (U) As identified above, several deficiencies were identified with compliance to the Depot Maintenance Project Directive PD B-8-00-2454 for the isothermal room.

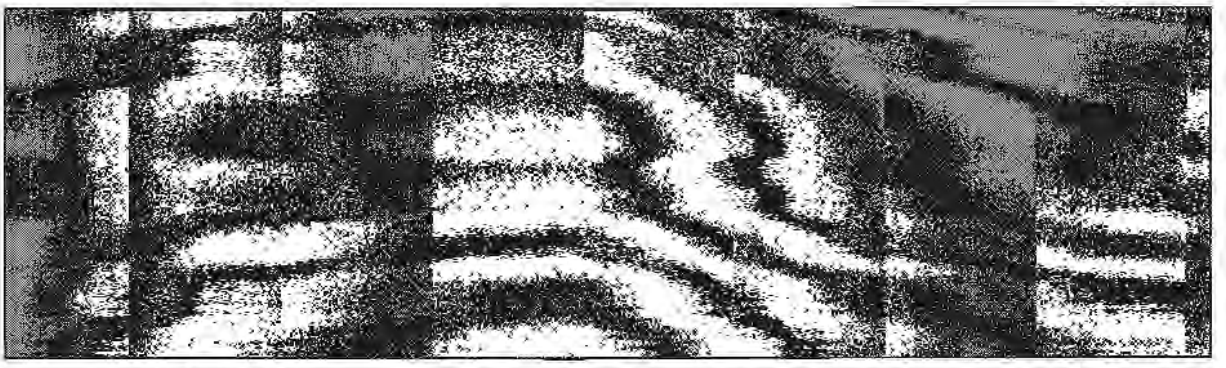







(b)(1)(b)(3) 42 USC § 2168a(a)(1)(C)(FRD)





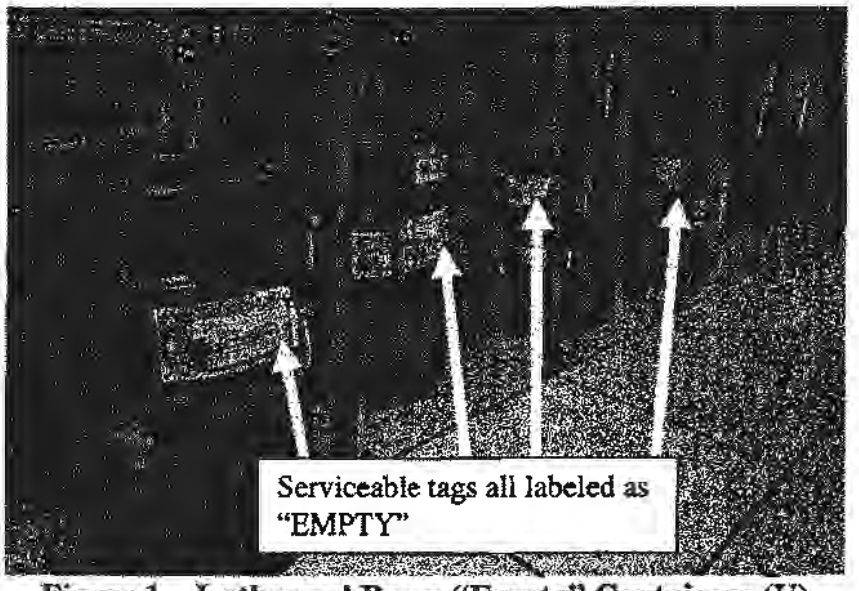


Figure 1 – Isothermal Room "Empty" Containers (U)

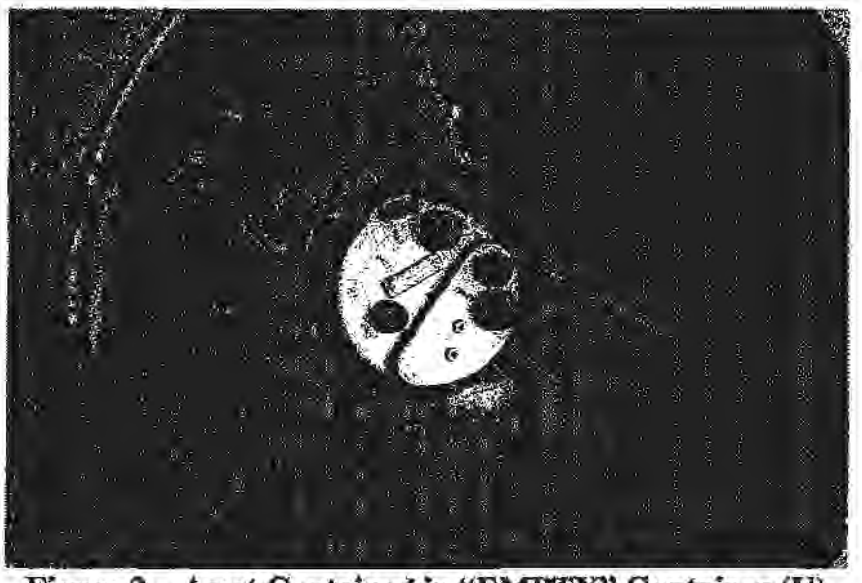
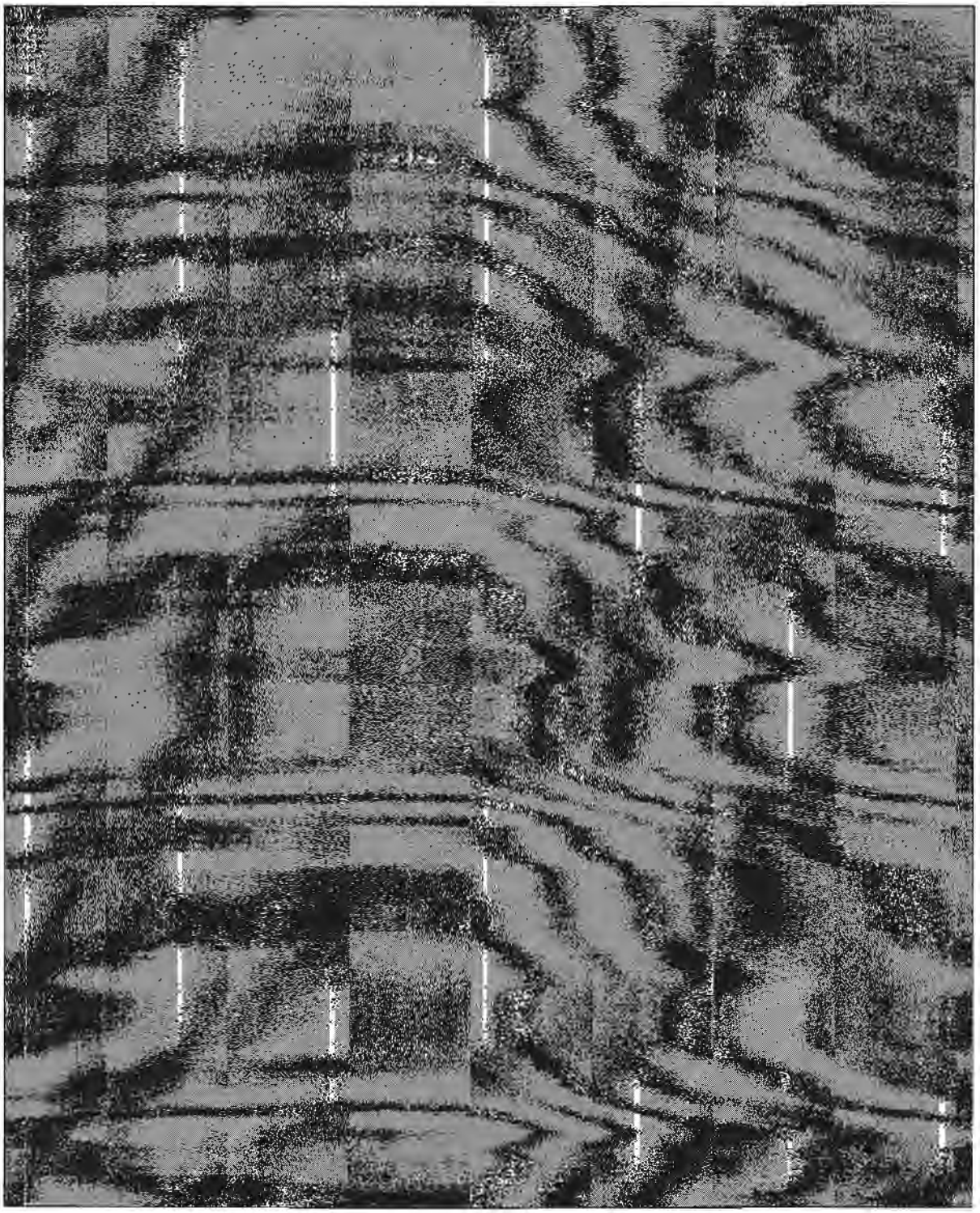


Figure 2 – Asset Contained in "EMPTY" Container (U)



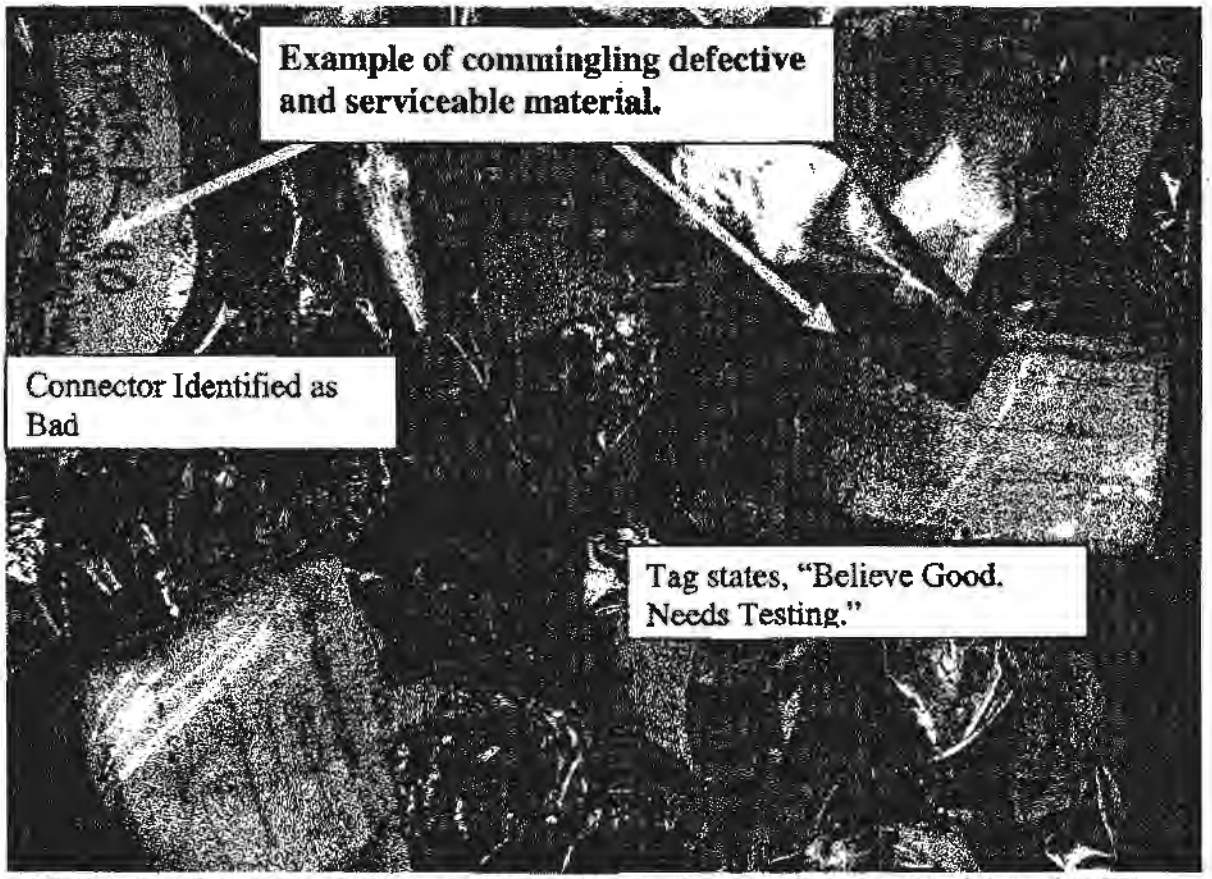
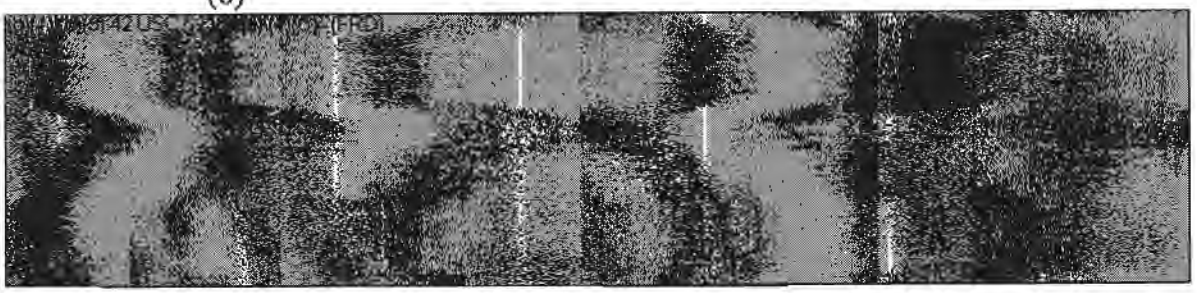
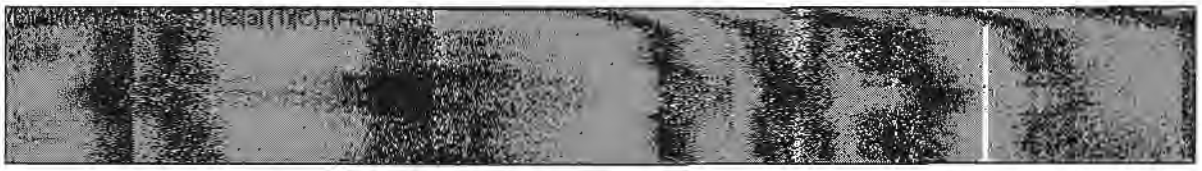


Figure 3 – Example of Commingling of Defective and Serviceable Material (U)

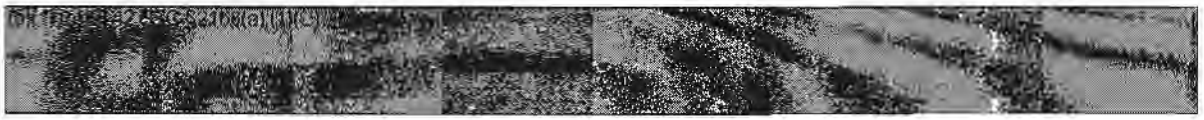
(5) (U) From 13 to 19 April 2008, the Air Force conducted a "Red Team" review based on concerns identified by the Investigation Team with the 309th Missile Maintenance Group and 526th ICBM Systems Group. This review corroborated the issues identified by the Investigation Team, identified additional problems in these areas, and provided specific recommendations to address the problems. Significant problem areas identified by the Red Team included the following:

(6)



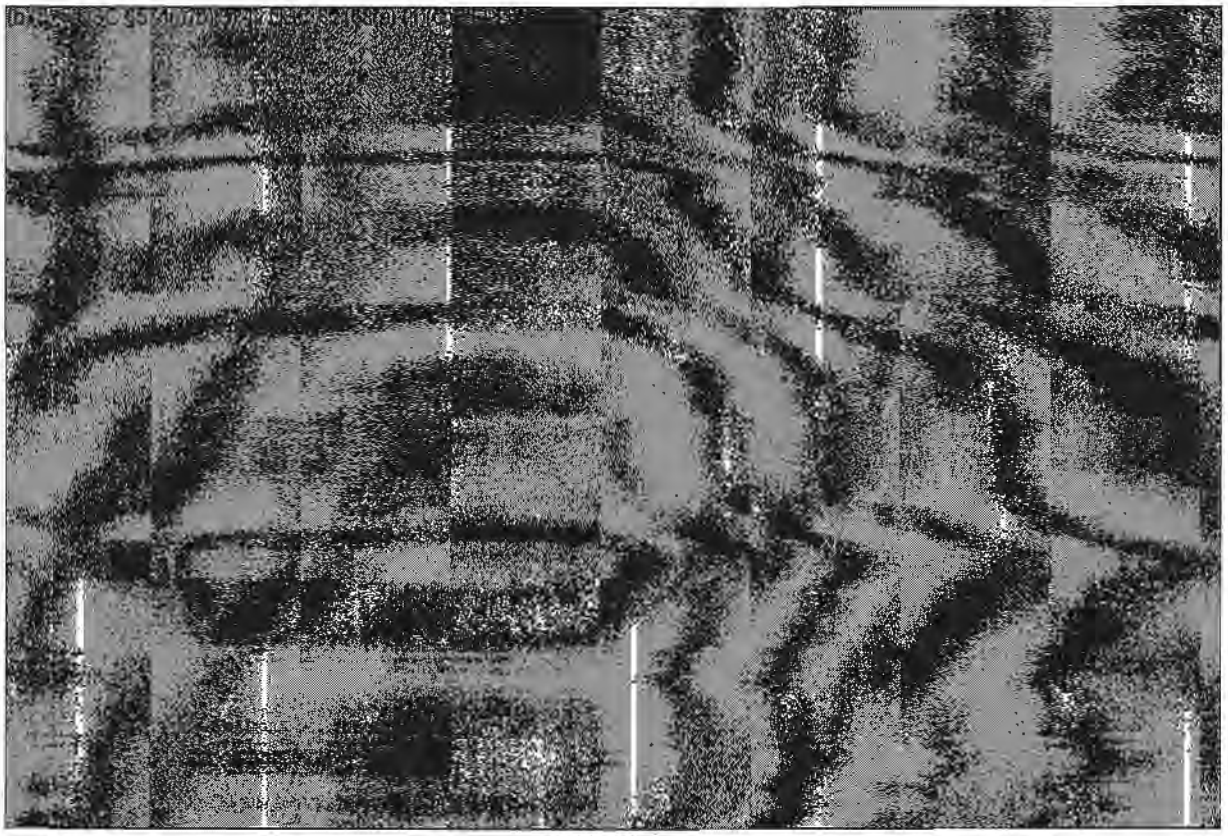


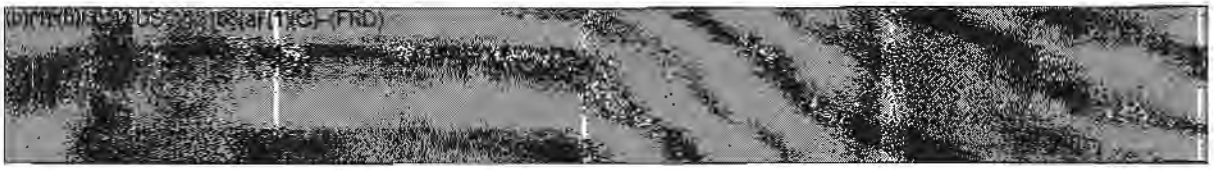
(c) (U) Air Force and AFMC governing processes do not provide adequate material control requirements for the maintenance performed within the 309th Missile Maintenance Group.

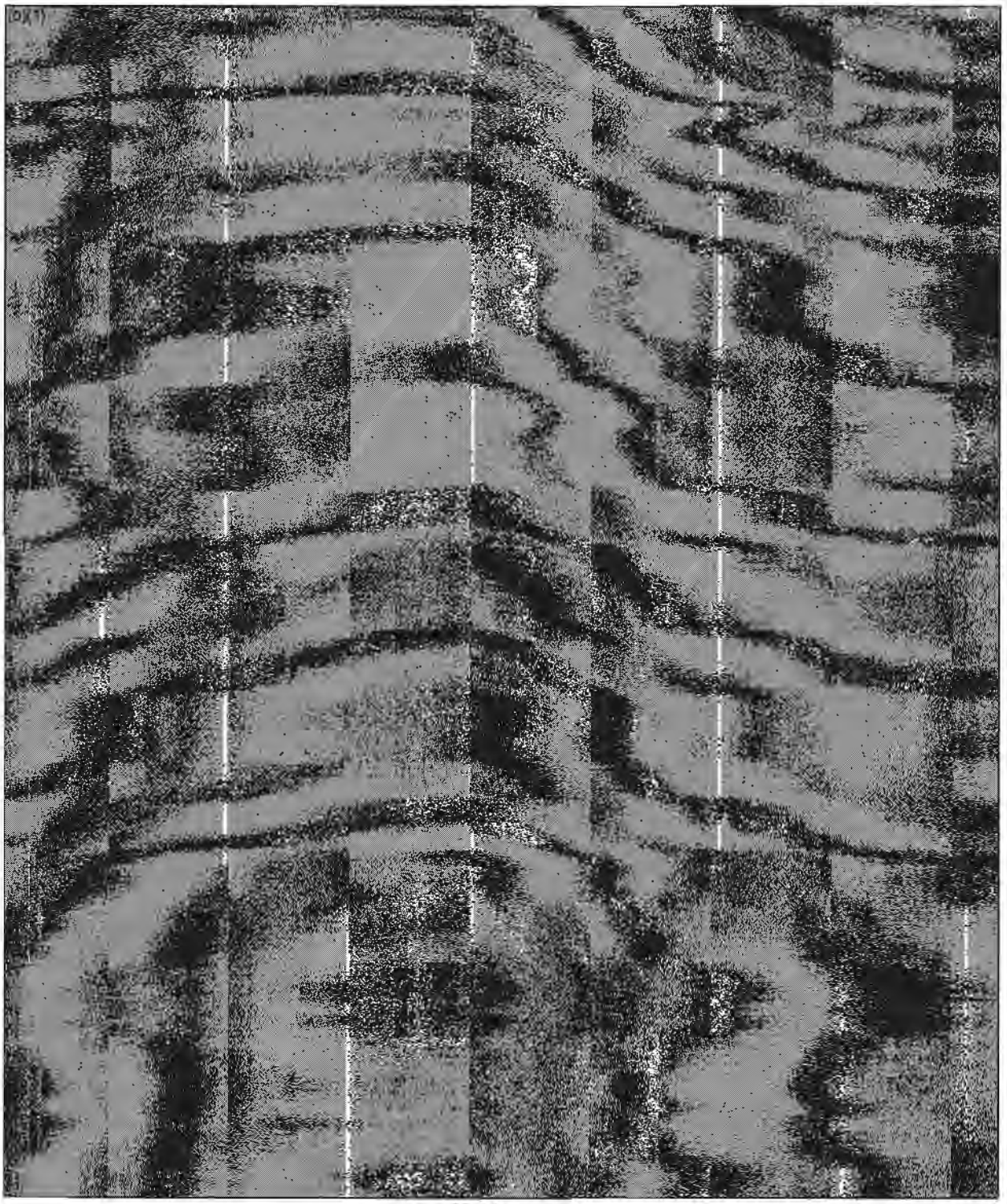


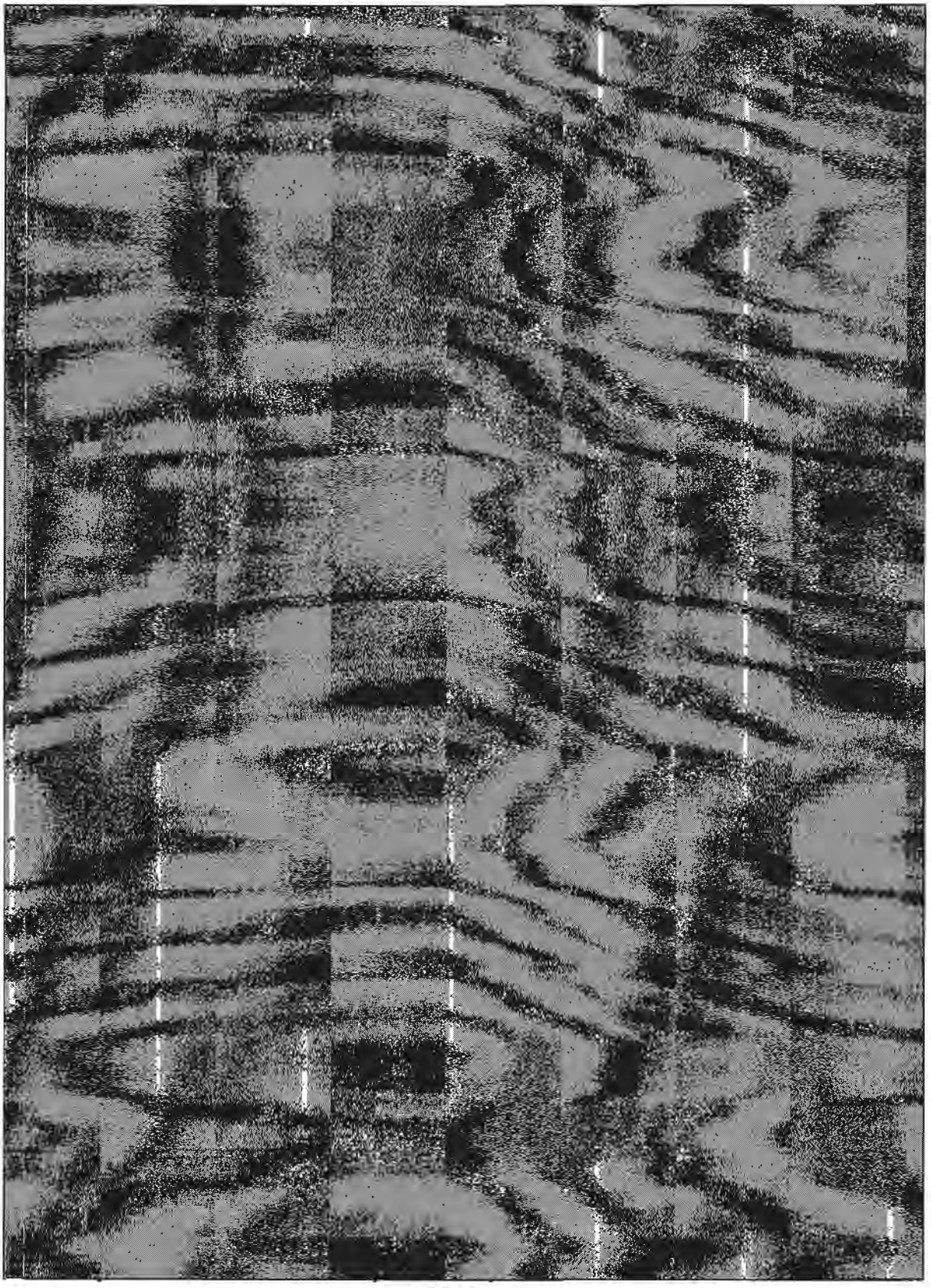
(e) (U) Quality assurance personnel have been complacent and surveillances have not been adequate to correct deficiencies, including material control and work control document deficiencies, previously identified in external reviews from 2005 to 2008.

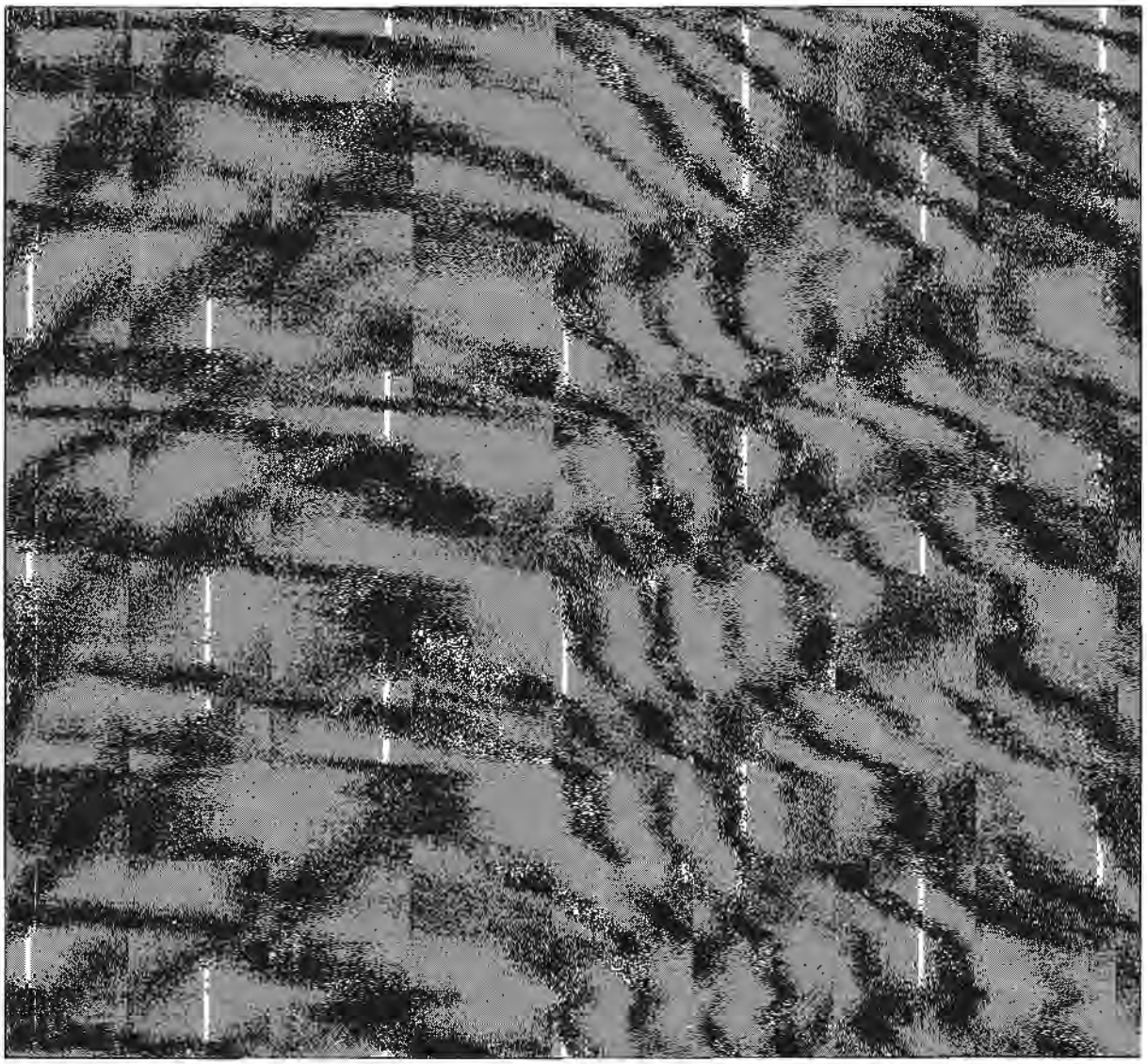
b. (U) Review of the 90th Space Wing, F.E. Warren, Cheyenne, Wyoming; 5th Bomb Wing, Minot Air Force Base, Minot, North Dakota; and the 341st Space Wing, Malmstrom, Montana Weapons Storage Areas (WSAs):



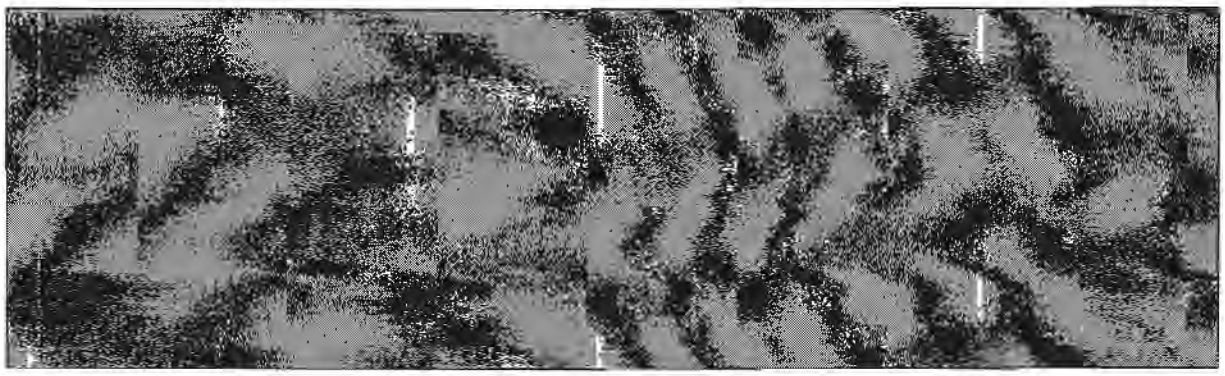


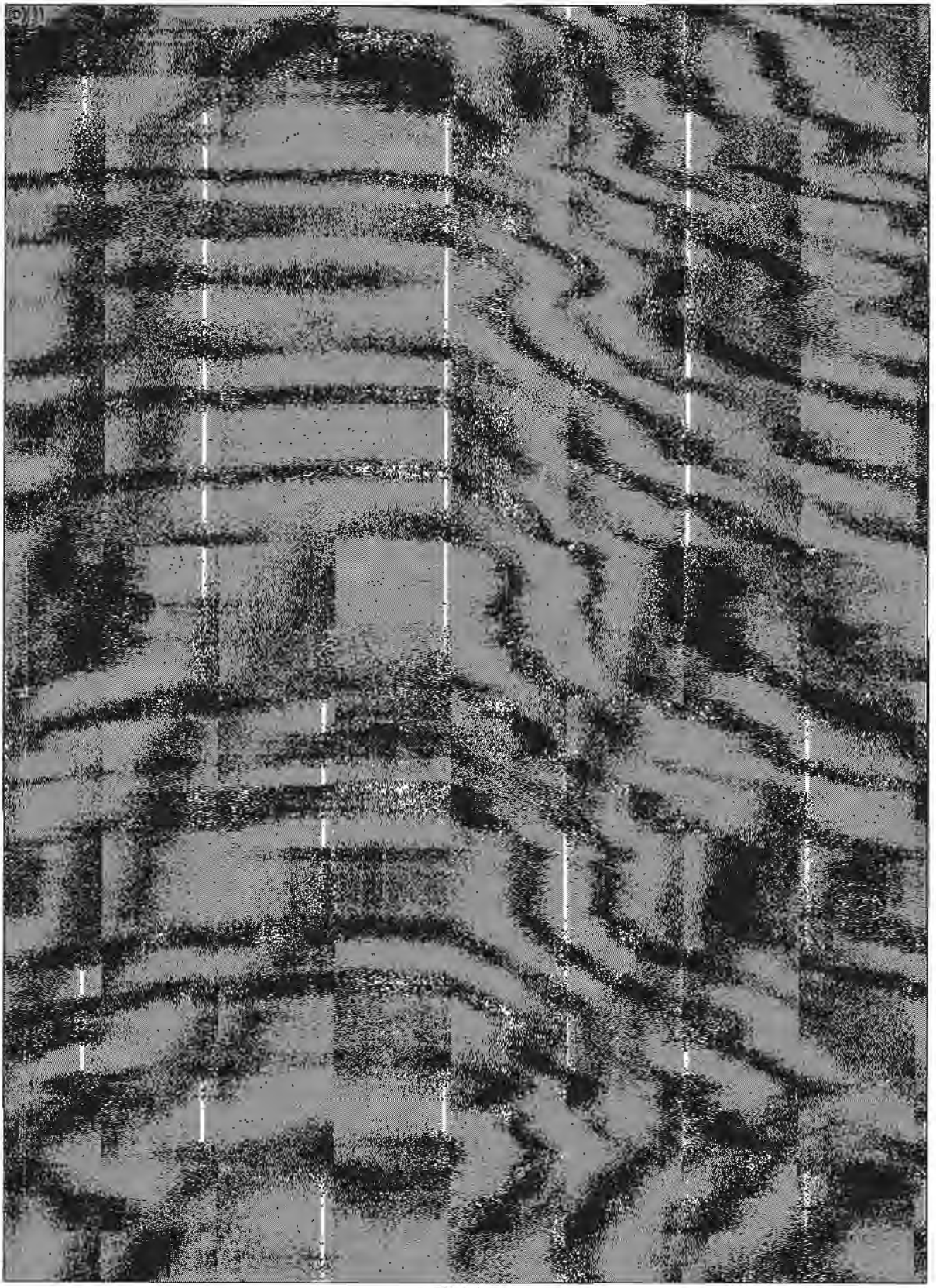


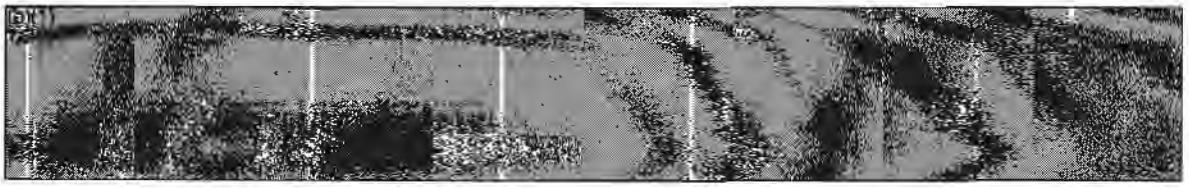




(a) (U) 90th Space Wing WSA Material Control:



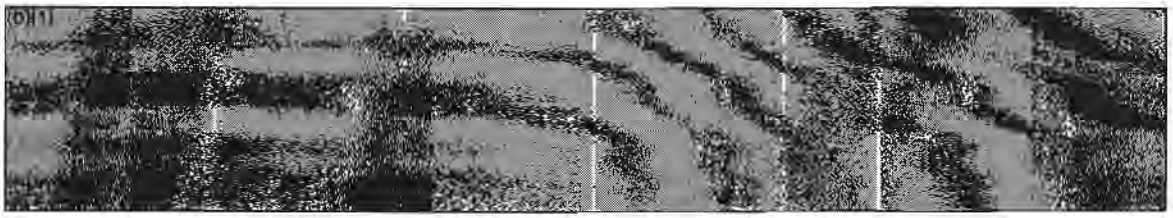




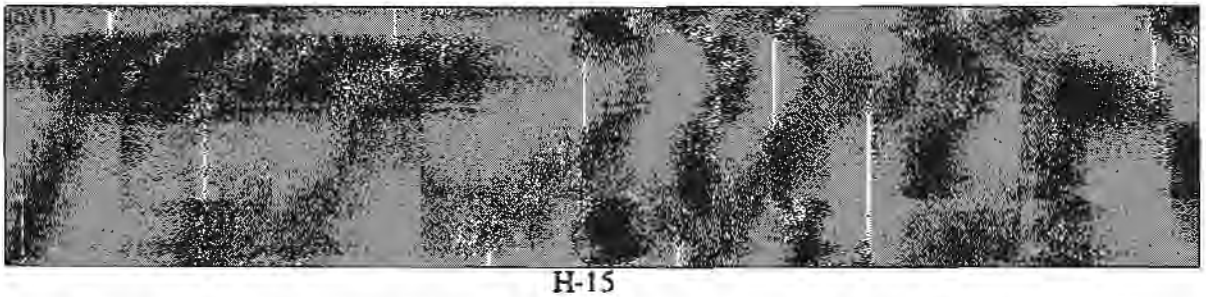
7) (U) Investigation Team inspection of the WSAs identified a number of deficiencies with stored equipment. Specific deficiencies included:

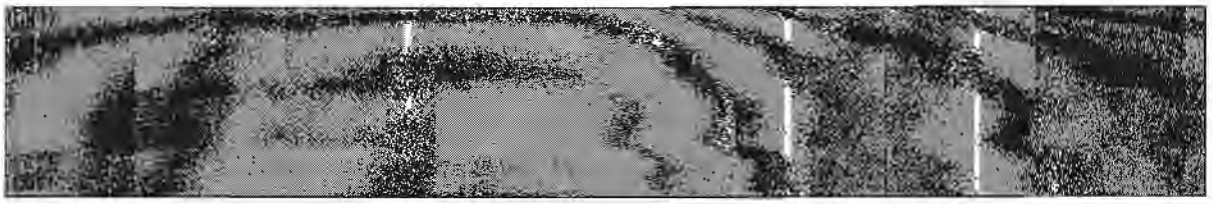
d) (U) Cable protective cap retaining chains were found broken on several cables.

(b) (U) 5th Bomb Wing WSA Material Control:



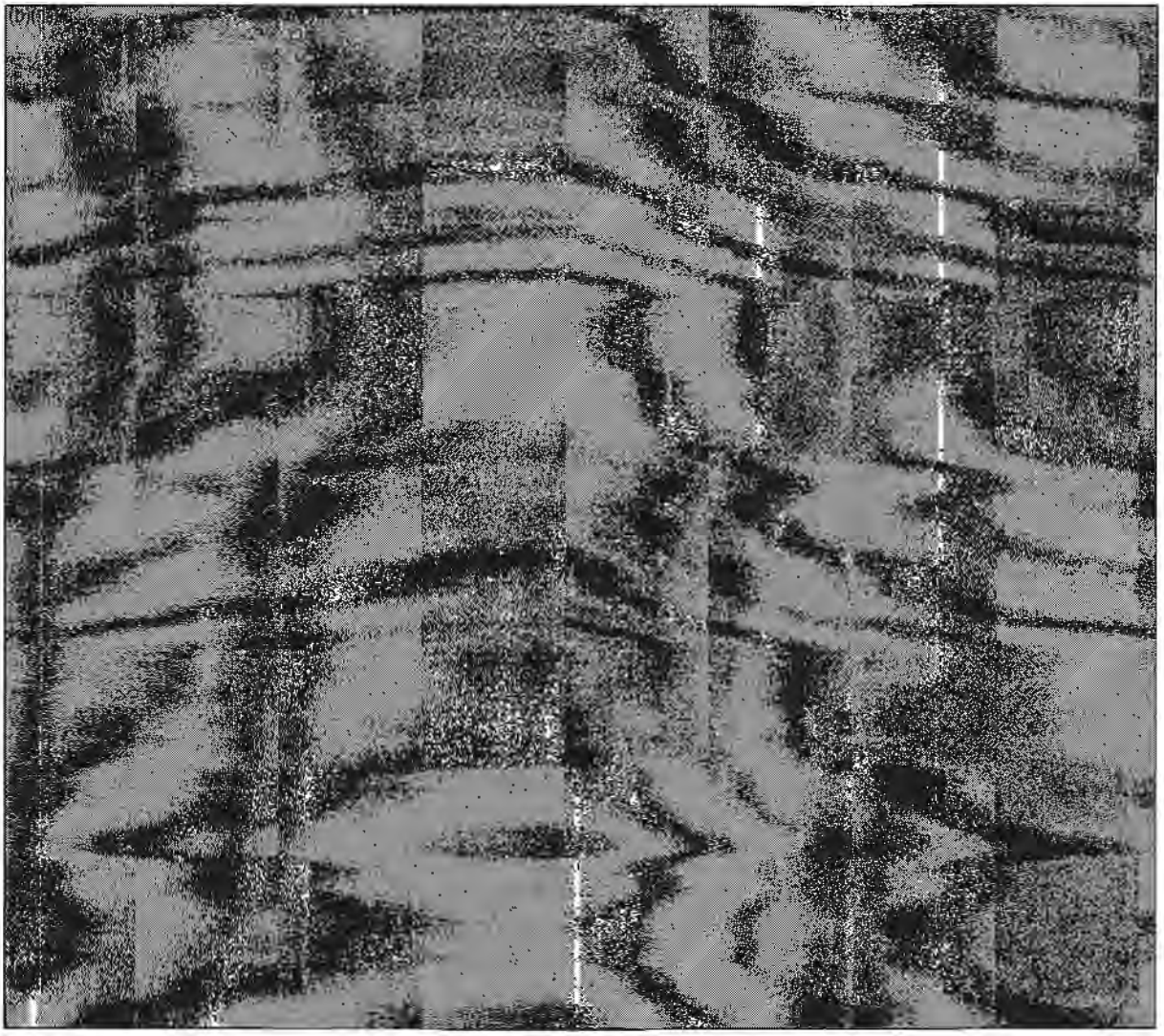
2) (U) The Investigation Team found a work bench drawer holding bench stock of numerous fasteners and many other loose items that were haphazardly stored and commingled. When questioned, the Bay chief informed the Investigation Team that the shop requirement was to have each part in bins segregated by part number.

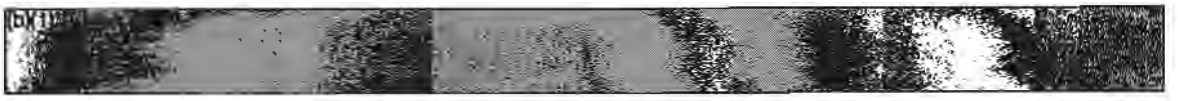




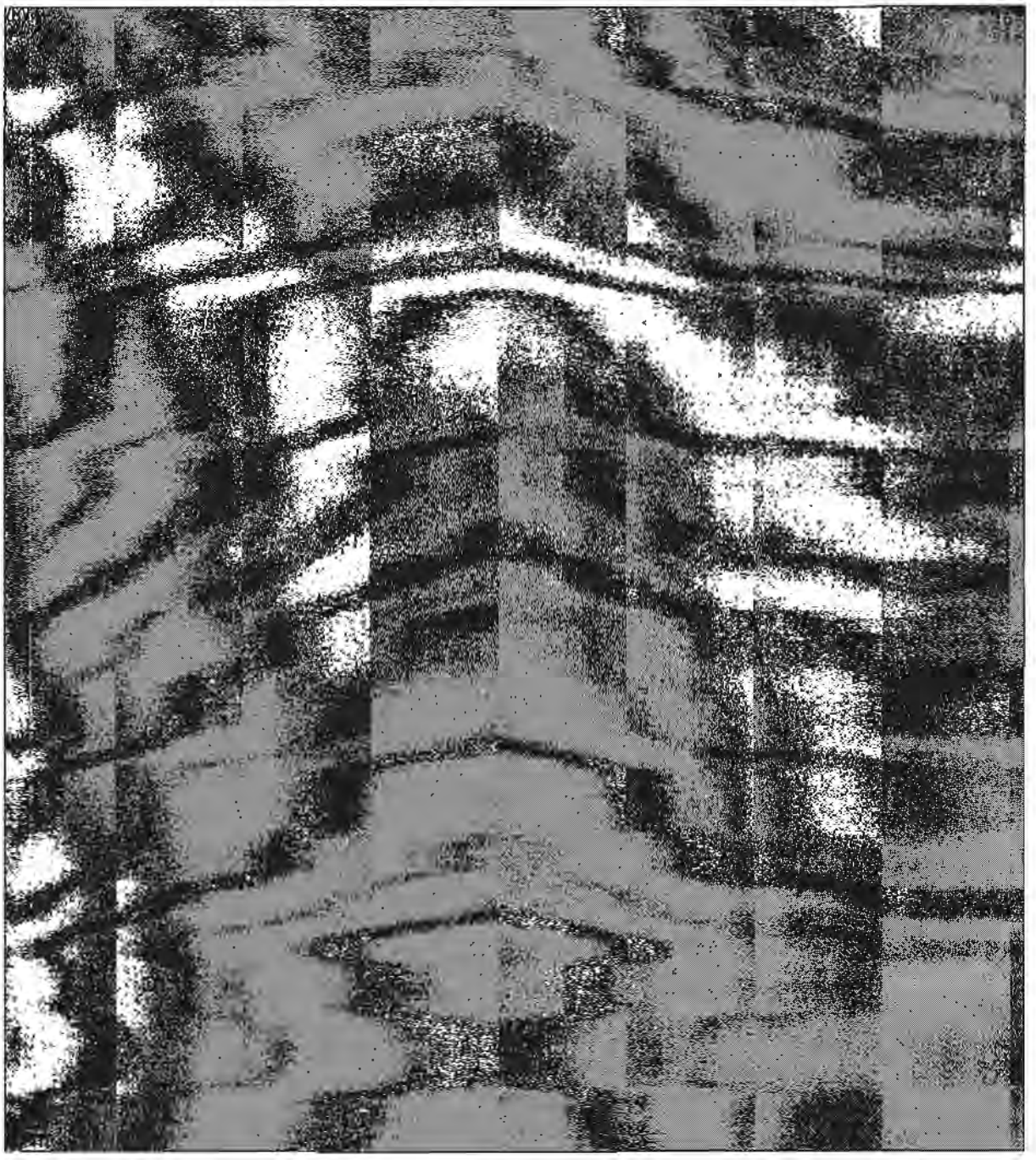
4) (U) One recently unpackaged chaff dispenser (serial number (b)(2) in Bay 4 included a Minot material condition tag on the outside of the package and a Hill AFB tag on the inside. The 5th Bomb Wing agreed that the Hill AFB tag should have been replaced when the item was receipted.

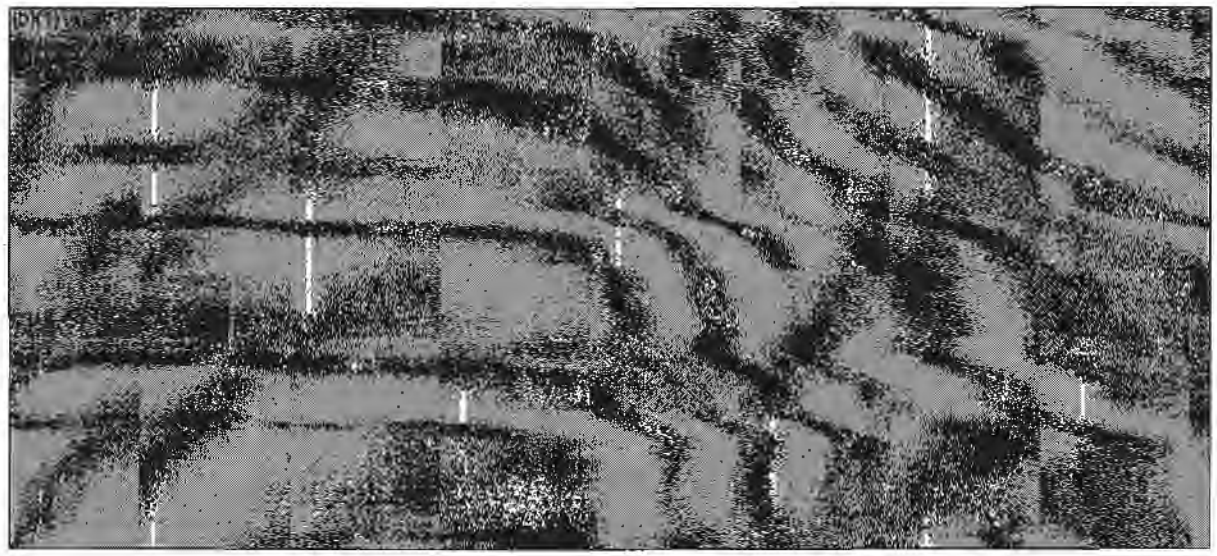
5) (U) One recently unpackaged chaff dispenser had conflicting serial numbers between the outside and the inside material condition tags.



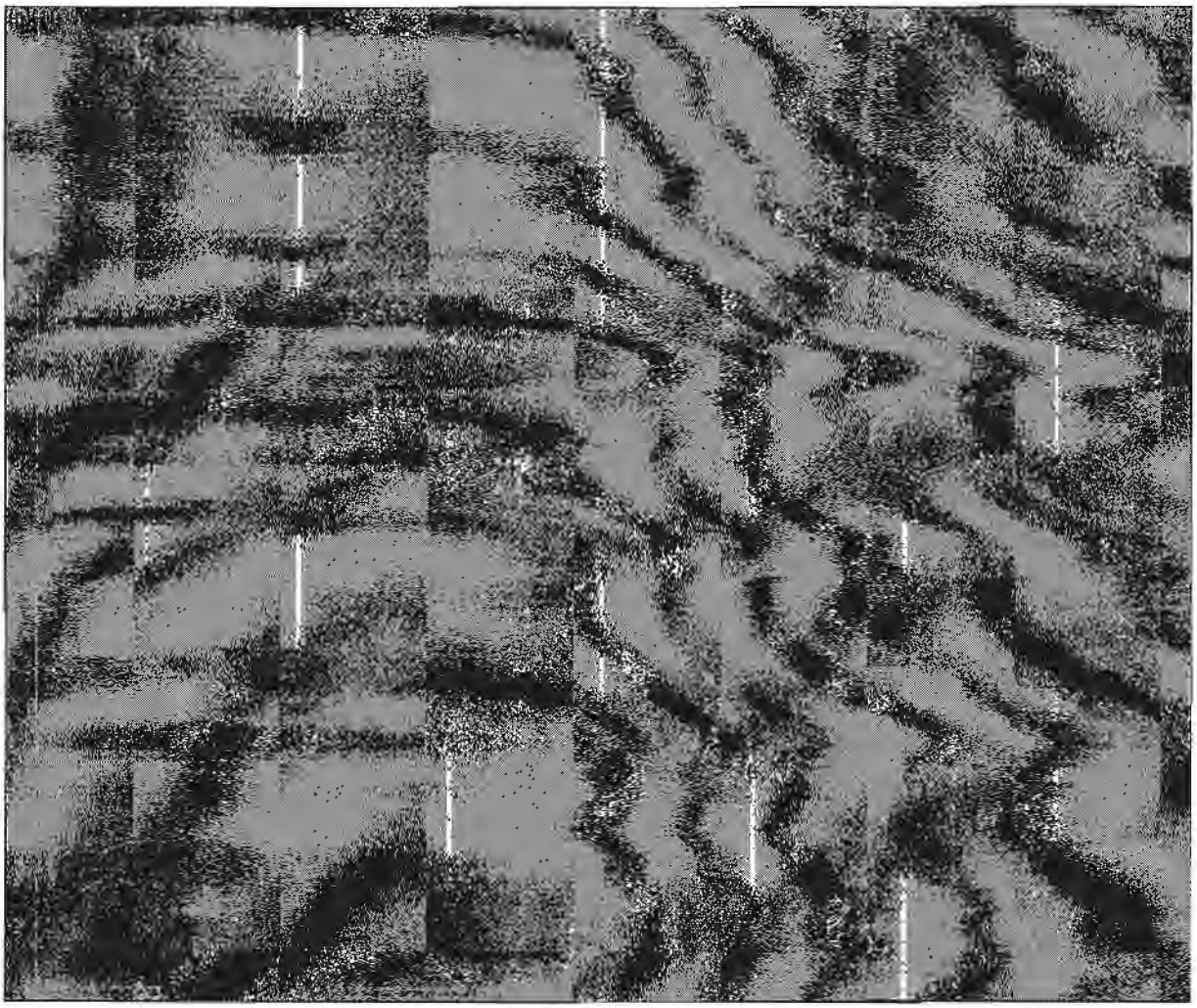


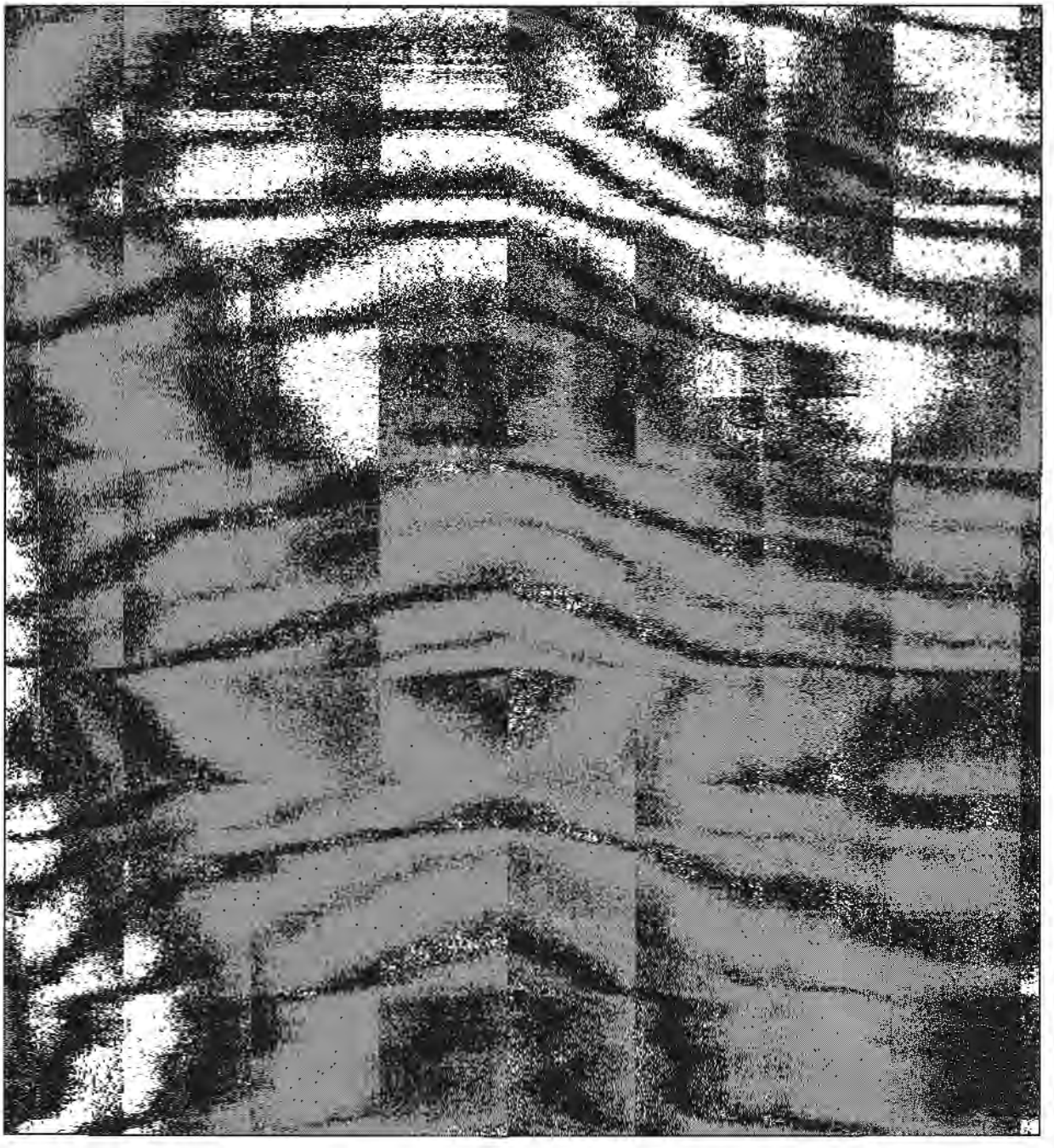
12) (U) A piece of masking tape attached to the forward section assembly hoisting adapter (b)(2) serial number (b)(2) incorrectly identified the part as serial number (b)(2)





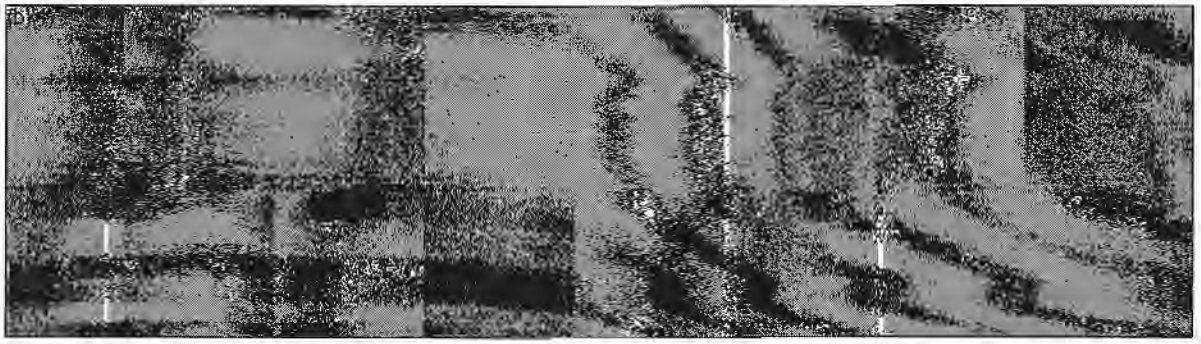
(c) (U) 341st Space Wing WSA Material Control:

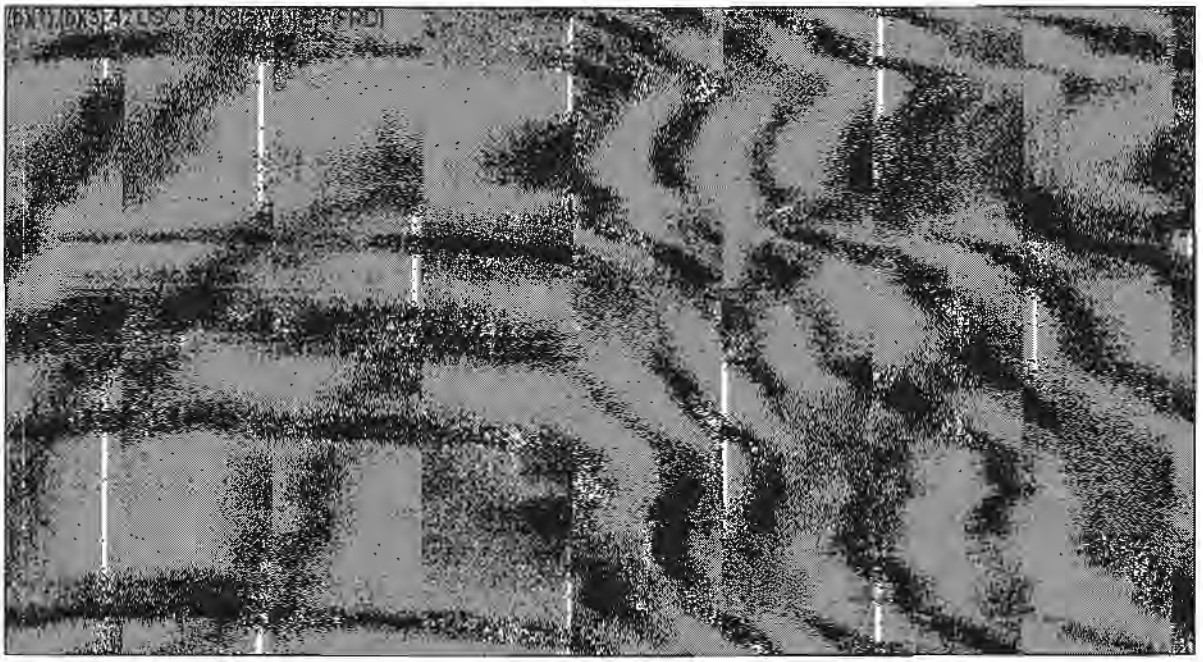




8) (U) The Investigation Team identified a number of parts on the floor including dust caps, wire clamps, and electrical covers. Additionally, cable assemblies were found stored without electrical connectors attached.

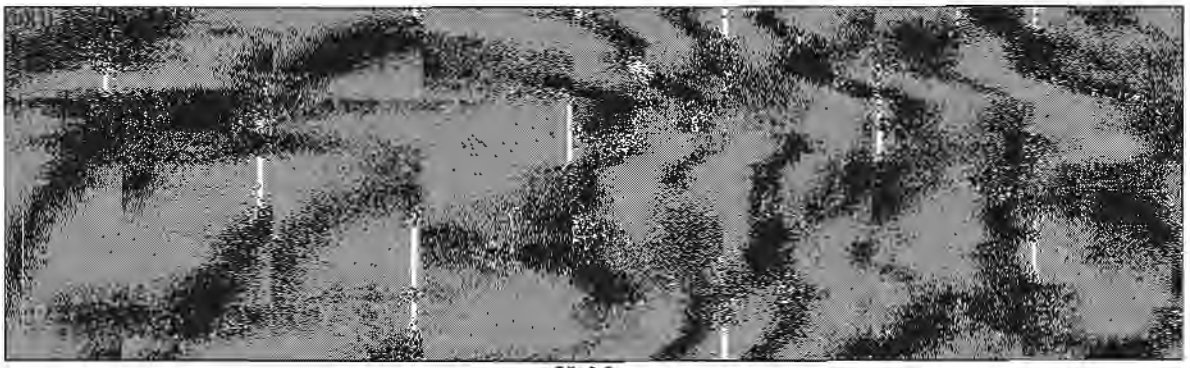
9) (U) The Investigation Team identified several pieces of test equipment used to support vacuum testing which did not have cleanliness caps installed on the equipment.

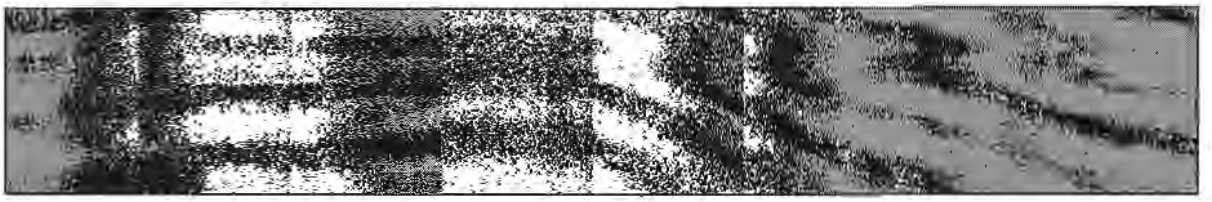




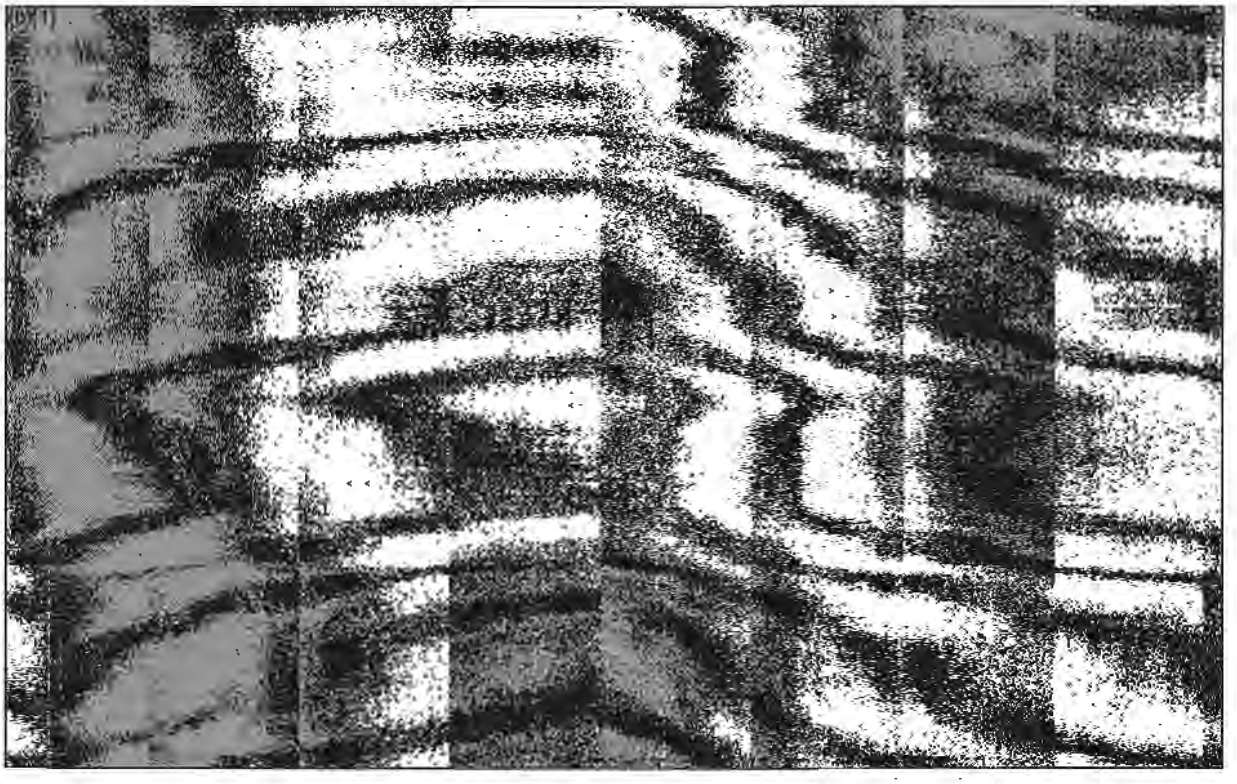
(3) (U) Deficient Technical Direction:

(a) (U) The 526th ICBM Systems Group provided informal direction via email to remark MK-12 forward section assembly shipping containers contrary to the requirements of AFI 21-303 (Technical Orders).

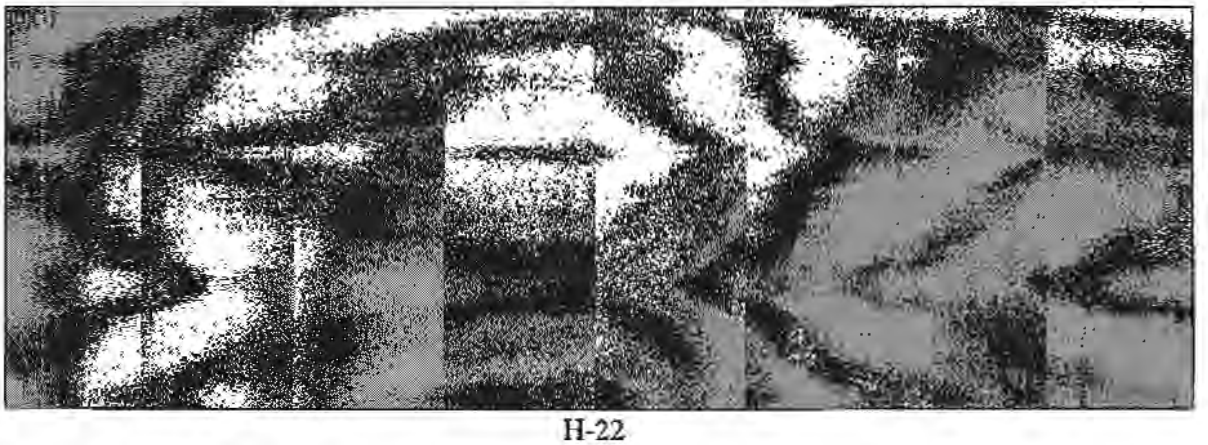


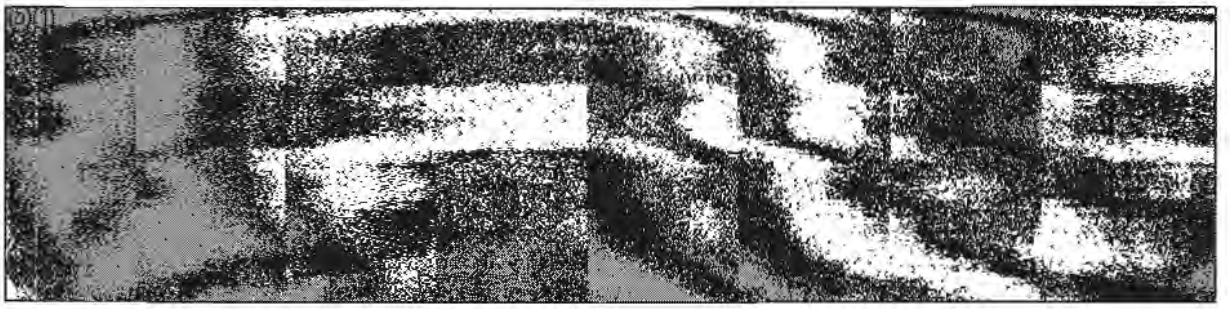


(4) (U) Administrative Control:



(c) (U) At F. E. Warren AFB, the Investigation Team identified two incomplete material discrepancy reports (DRs) were misplaced in a desk. The 90th Maintenance Group stated that these were original drafts of the DRs and they had since been already re-written and forwarded.





(f) (U) At Minot AFB, two technical compliance change orders, TO 16W21-4-551 (Support Payload Bulkhead Modifications to Support Single Payload) and TO 16W21-4-554C (Modification of Support Payload Bulkhead to Incorporate Guidance Replacement Program), contained significant pen and ink changes (written in pencil) throughout both documents, which complicated their usability. For example, TO 16W21-4-551 contained approximately twenty changes made in calendar year 2003.

(5) (U) Facility Deficiencies: The Investigation Team reviewed the material condition of the Minot, Malmstrom, and F. E. Warren WSAs and identified a number of deficiencies associated with maintenance of the facility and associated equipment. The Investigation Team observed that the material condition of the Minot WSA was noticeably below the material condition of the F.E. Warren and Malmstrom WSAs.

(a) (U) Minot AFB WSA Facility Deficiencies: The Investigation Team identified a number of deficiencies associated with peeling paint, missing ceiling tiles, defective emergency lights, defective insulation, broken or malfunctioning tool lockers, broken cabinets, and electrical cabinet doors, and cracked air supply hoses. Other concerns included:

1) (U) The WSA ventilation system was recently modified. In review of the installed ventilation system, the Investigation Team identified that three large exhaust vents did not have vent covers installed at the openings.

2) (U) The Investigation Team identified two hazardous spill lockers which did not have inventory requirements listed. When questioned, the 5th Bomb Wing could not explain the potential uses of the spill lockers because they had not been trained on their use. Additionally, the locker in the WSA hallway had a broken door hinge.

3) (U) A reentry vehicle support stand which had been previously identified to be leaking hydraulic fluid was leaking onto the floor. Additionally, the unit was stored within two feet of a floor drain.

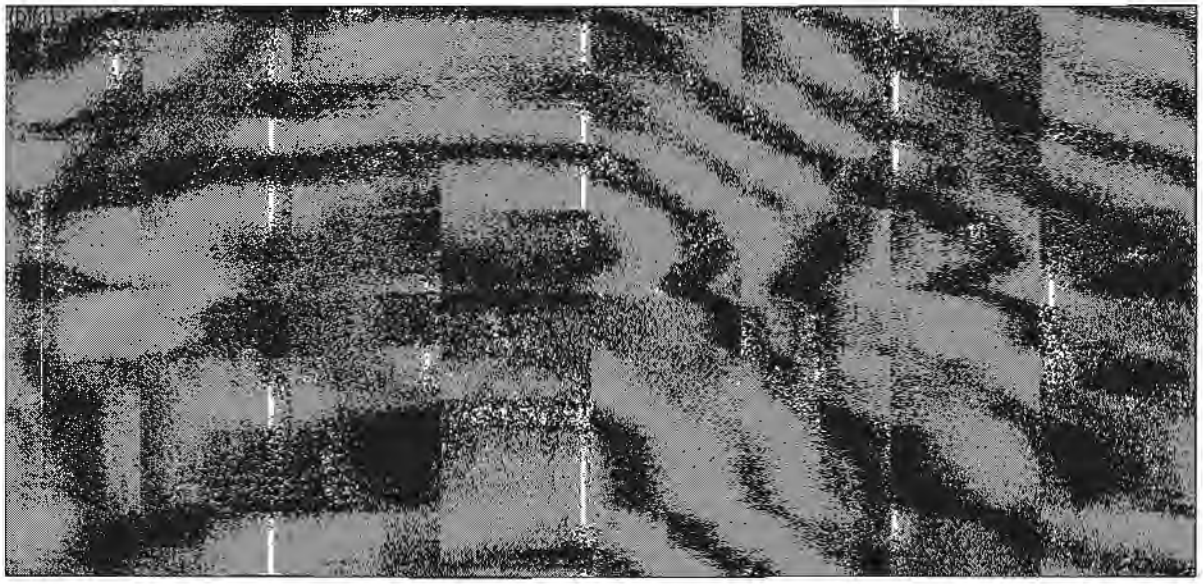
(b) (U) Facility Deficiencies in the Malmstrom WSA: The Investigation Team identified several of deficiencies including leaking hydraulic motors, leaking valves and damaged lagging associated with a washdown system, and removed and dirty trench screens.

(c) (U) Facility Deficiencies in the F.E. Warren WSA: During a tour of the reentry system transfer pit in Bay 6 of the WSA, the Investigation Team identified that the ventilation system servicing the area had limited flow. Upon identification, the Flight Chief contacted facility maintenance personnel who confirmed that the ventilation system had limited flow potentially due to an obstruction within the system. The Base Ground Safety Manager was informed of the ventilation problem and initiated an evaluation of the reentry system transfer pit for potential non-permitted confined space conditions.

c. (U) Quality Assurance (QA) Programs:

(1) (U) QA Program within the 309th Missile Maintenance Group: The Investigation Team identified non-adherence to scheduled inspections, insufficient metrics to identify trends and ensure the program is executed to the Quality Assurance Surveillance Plan, and limited involvement by 309th Missile Maintenance Group management personnel outside of the QA group. The Investigation Team identified that the QA program focuses primarily on compliance in work areas using checklists similar to those used during periodic higher order inspection (Operational Readiness Inspections (ORI), Logistical Standardization and Evaluation Team (LSET), Staff Assistance Visits). Additionally, past inspections conducted at the facility indicate repeat problems with the control of material within the shop which were consistent with the material deficiencies identified by the Investigation Team. As discussed elsewhere in this report, the Investigation Team identified a number of material control problems within the shop indicating that the systemic causes for poor control of material have not been corrected.

(a) (U) Contrary to the 309th Missile Maintenance Group OI 21-115, Section 11.4.2.1, not all program and monthly core inspections were fully accomplished. In the 582nd Missile Maintenance Squadron, 36% of scheduled core inspections were accomplished in the 12 month period ending in February 2008. Specific examples of problems with material core inspections included:



4) (U) The Investigation Team noted that the attribute checklist for core inspections of material controls does not include a review of the material inventory requirements specified by AFMCI 21-130.

(b) (U) Quality Assurance Metrics: Metrics do not allow sufficient analysis to identify problem areas within the 309th Missile Maintenance Group. For example, the metrics do not show the percentage of scheduled inspections performed. The monthly Quality Review Board report provides the results of the inspections actually performed but does not include a metric to show the number of inspections performed as compared to those scheduled.

(c) (U) Documenting Deficiencies: During discussions with the Deputy Director of the 309th Missile Maintenance Group and the QA Manager for the 309th Missile Maintenance Group, the only personnel who enter deficiencies into the Quality Information Management System (QIMS) are quality inspectors. Deficiencies identified and corrected by technicians and supervisors are not documented or captured for future trend analysis and action.

(d) (U) Management Involvement: The 309th Missile Maintenance Group does not effectively utilize Management Inspections (MI's) in accordance with the 309th Missile Maintenance Group OI 21-115. Specifically, the instruction includes provisions for management to direct MI's to follow up on trends or conduct investigations/inspections not covered by other inspection categories. The Investigation Team notes that MI's were not performed within the 309th Missile Maintenance Group related to material control since 2002 despite recurring material control problems from staff assistance visits and other higher-level internal reviews.

(e) (U) Repeat Problems: The Investigation Team reviewed surveillance results for calendar years 2005, 2006 and 2007. QA inspectors did not identify any deficiencies in material control during CY 2007. The recent data does not correlate with the Investigation Team's findings of deficiencies in material control and inventories. Specifically, during tours and reviews of maintenance practices within the 309th Missile Maintenance Group, the Investigation Team identified numerous material control and inventory issues within work and storage areas. Material control problems were identified as a "significant concern" during the September 2005 Oversight Inspection Compliance of General Programs and Technical Data/Process Management conducted by the 309th Maintenance Wing. The 309th Missile Maintenance Group was unable to provide any documentation of actions taken as a result of this inspection.

(f) (U) Significant Air Force Lessons Learned Not Addressed: Upon request from the Investigation Team, the 526 ICBM Systems Group and the 309th Missile Maintenance Group reported that neither group had reviewed or taken any actions based on the Commander Directed Investigation Report: *Investigation Concerning An Unauthorized Transfer of Nuclear Warheads Between Minot AFB, North Dakota and Barksdale AFB, Louisiana.* Following a review of the investigation report by both groups during the Investigation Team's visit to OO-ALC, each group concluded that there were actions within the subject report that would be of value for both the 526 ICBM Systems Group and the 309th Missile Maintenance Group.

(2) (U) 90th Space Wing Quality Assurance Program: The 90th Space Wing conducts self-assessment through Unit Self-Inspections (USI) in accordance with 90th Space Wing Instruction 90 and QA inspections per AFI 21-204 and AFI 21-101. The Investigation Team reviewed these programs with the following observations:

(a) (U) Unit Self Inspections (USI): The Investigation Team reviewed recent USI checklists and Self-Inspection Program (SIP) database entries for the 90th Maintenance Group and the 90th Logistics Readiness Squadron. Per instruction, checklists are completed by the individual responsible for the associated subject matter.

1) (U) The Investigation Team reviewed all Self Inspection Program (SIP) database entries for the 90th Maintenance Group and the 90th Logistics Readiness Squadron for calendar years 2005, 2006 and 2007. The command only entered deficiencies not corrected within five days of identification. As a result, data in the database is sparse (Maintenance Group - 4 entries; Logistics Readiness Squadron – 7 entries). This practice precluded the command from using the database to conduct trend analysis or identify underlying command-wide problems.

2) (U) The Investigation Team reviewed completed Maintenance Group and Logistics Readiness Squadron checklists from the command directed November 2007 USI. Many units completed the reviews with no identified deficiencies. The lack of deficiencies identified by the 90th Space Wing did not correlate with the Investigation Team's findings of deficiencies in material control and inventories.

3) (U) The command did not document corrective actions of root causes for deficiencies entered into the SIP database. Additionally, the command does not retain documentation of corrective actions for deficiencies corrected within the five day period after identification.

(b) (U) Quality Assurance Inspections:

1) (U) The Investigation Team reviewed all QA evaluations conducted on the 90th Space Wing Munitions Work Center during the period September 2007 to March 2008 and all Maintenance Standardization and Evaluation Program (MSEP) monthly reports and quarterly briefs to the chain of command for calendar year 2007. The QA evaluator identified and documented many deficiencies during this period. The Investigation Team identified that root causes or associated long-term corrective actions were not documented. This precluded the command from conducting long-term trend analysis.

2) (U) The Investigation Team identified that there was not any documentation of personnel other than the quality inspectors within the chain-of-command conducting or documenting surveillances as part of the QA program.

(3) (U) Review of QA at the 5th Bomb Wing and 341st Space Wing: The Investigation Team identified that QA inspections and surveillances required per AFI 21-204 and AFI 21-101 were being accomplished. Additionally, these reviews were identifying significant problems. However, opportunities existed to make better use of the identified problems to continually improve processes and execution as well as prevent the recurrence of problems. The Investigation Team reviewed the MSEP at the 5th Bomb Wing and the 341st Space Wing and identified that improvement was needed in identifying and trending the underlying causes of deficiencies.

(a) (U) The Investigation Team reviewed the MSEP monthly meeting reports prepared by the 5th Bomb Wing for January through March 2008 and identified the following:

1) (U) Numerous metrics and charts are provided that bin deficiencies into general categories. However, trending efforts are limited to

reviewing the immediately apparent deficiency and do not address potential underlying causes of the deficiencies or identify any specific corrective actions to address deficiencies.

2) (U) In January 2008, 22 major issues are identified but no causal analysis or corrective actions are identified to address these major issues. No trends are identified.

3) (U) In February 2008, 34 major issues are identified, but no causal analysis or corrective actions are identified to address these major issues. No trends are identified.

4) (U) In March 2008, 46 major issues are identified, but no causal analysis or corrective actions are identified to address these major issues. The report states that basic maintenance and tool discipline is a focus area, but no specific actions or underlying problems are identified to address these areas.

5) (U) In discussions with the Investigation Team, the 5th Bomb Wing identified that corrective actions are briefed to the 5th Maintenance Group commander during MSEP monthly meetings. As identified above, these reports do not provide documentation for these corrective actions. Additionally, the 5th Bomb Wing indicated that quality assurance is not required to concur with corrective actions.

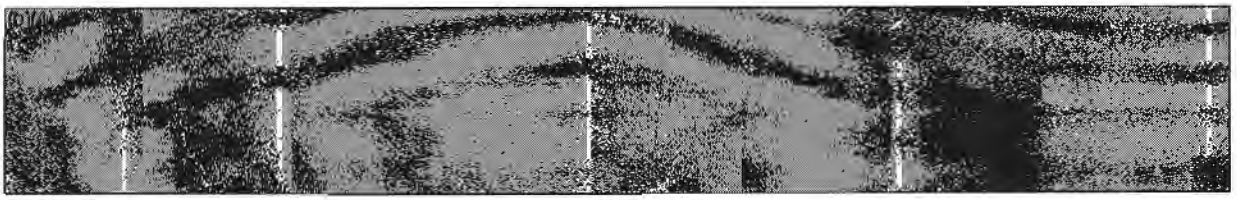
(b) (U) The Investigation Team reviewed the MSEP monthly meeting reports prepared by the 341st Space Wing for June 2007 through March 2008 and identified the following:

1) (U) MSEP reports from the 341st Space Wing provided significantly less detail than those from the 5th Bomb Wing. The reports did not categorize deficiencies into functional areas or provide any charts or metrics in functional areas to facilitate trending of deficiencies.

2) (U) The reports did not identify any corrective actions to address systemic issues or identify any trends in performance. Numerous examples were found where the only action taken was to address the problem by retraining "on the spot" or "during the critique". For example, from June 2007 to March 2008, this immediate training was the only identified corrective action taken when errors were made during work execution, including errors characterized as major problems. Potential underlying problems in more fundamental areas such as engineering support, recurring training, and supervision are not addressed. Additionally, the independence of QA personnel is potentially compromised if QA is responsible for conducting

retraining. Examples of major problems that identified this one time training as the sole corrective action included:

a) (U) In January 2008, a technician failed to properly attach a safety lanyard, which was characterized as having the potential to result in personnel injury or death.



c) (U) In November 2007, a technician failed to follow procedures and incorrectly disconnected an energized cable. The report identifies the discrepancy created a serious shock hazard which could result in injury or death.

d) (U) In November 2007, two technicians failed to follow procedures for accomplishing inspection of a launcher closure bearing surface by performing the inspections in the dark. The report characterizes this problem as leaving the serviceability of the component in question. Subsequent inspections identified corrosion on the component.

e) (U) In July 2007, two technicians were identified as not qualified for the assigned equipment (Distribution Box) checkout task, and exhibited lack of proficiency in the task.

3) (U) In discussions with the Investigation Team, the 341st Space Wing identified that while significant issues are discussed at monthly performance reviews and unsatisfactory boards, corrective actions are only verbally briefed. No formal critique process is in place to examine underlying causes and document required corrective actions to prevent recurrence of the more significant problems. Such a formal critique process includes methods to implement short-term actions to ensure adequate controls are in place to allow work to resume, long-term actions that replace short-term actions to correct the systemic causes of problems, and formal follow up to hold personnel accountable for completing effective corrective actions.

(c) (U) The Investigation Team reviewed the November 2007, September 2006, and October 2005 Activity Inspections completed by the 341st Missile Maintenance Group and identified the following:

1) (U) None of these inspections identified previous systemic issues or efforts to follow up on corrective actions and problem areas from external reviews (e.g., Nuclear Surety Inspections).

2) (U) The reviews were narrowly focused in specific areas as opposed to conducting broader reviews of functional areas. In well defined areas that require inspections, the reviews appear to be effective at identifying deficiencies. However, broader reviews in functional areas are not included. For example:

a) (U) In the November 2007 Activity Inspection, the review of training programs was limited to ensuring no classes were overdue and reviewing administrative aspects of training records, as opposed to reviewing the content and effectiveness of the fundamental and recurring training programs.

b) (U) In the September 2006 Activity Inspection, the review of training programs was similarly based on reviewing administrative records.

3) (U) None of the three Activity Inspection reports reviewed attempted to develop findings based on a roll-up assessment of the issues identified. For example, in the November 2007 Activity Inspection, the 341st Space Wing identified that 24 training qualifications were overdue. This was not used as an opportunity to address whether a broader problem existed with training administration. The problems were treated individually and each labeled with a cause code of "oversight". Additionally, the reviews did not request the command to present corrective actions for review and concurrence by QA.

(d) (U) The reviews required to be completed by the missile maintenance group QA personnel in accordance with the AFI 21-204 and AFI 21-204 Air Force Space Command Supplement 1, dated 1 December 2005, do not include reviews in functional areas such as material control and inventory control. QA reviews are principally based on reviews of technical order execution; records reviews; and inspections of components, parts, handling equipment and tooling. While all of these efforts are appropriate, they do not include reviews of functional programs that support execution of the work conducted by technicians such as training, material control, and compliance with technical requirements. The material control problems identified by the Investigation Team are examples of problems that could be prosecuted through effective surveillance of material control.

(4) (U) Ineffective Resolution of Longstanding Problems: There have been deficiencies noted in prior inspections and reviews, similar in many instances to

the findings of this investigation, which have not been resolved. Examples include the following:

(a) (U) A number of previous reviews have identified material and inventory control problems with depot level maintenance similar to those problems identified by the Investigation Team, and corroborated by the recent Air Force "Red Team". These include:

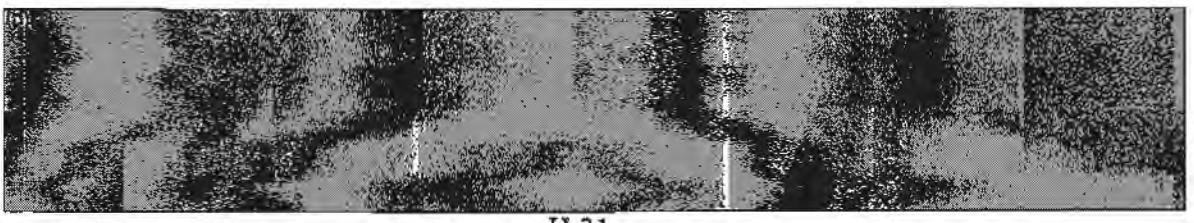
1) (U) In February 2003, Air Force Audit Agency (AFAA) audit AFAA F2003-0020-FCI000 identified that personnel did not maintain accurate inventory records for serviceable material in depot maintenance storage within the Ogden Air Logistics Center.

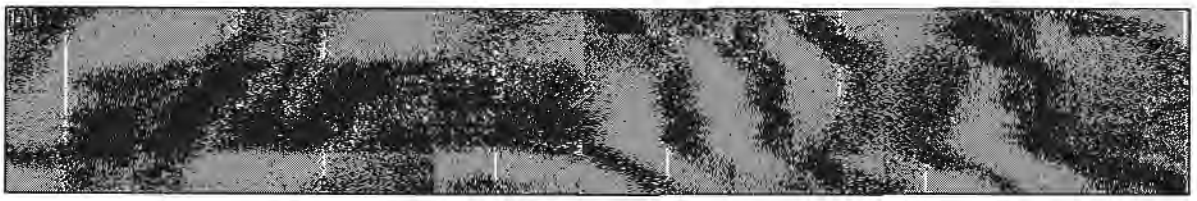
2) (U) In September 2003, Inspector General Audit DOD IG D-2003-130 identified that the Ogden Air Logistics Center did not effectively manage or control material stored in local maintenance shops. The audit identified about $9,500,000 of material not accounted for in shop records and about $10,900,000 of excess material found on shop floors and in storage areas. Additionally, the audit identified that required inventory audits had not been consistently performed.

3) (U) In September 2005, an internal review conducted by the 309th Maintenance Wing identified production material control as a significant concern. The review identified that excess materials were being maintained in production areas. Additionally, their review concluded that previous efforts to address these problems, which had been raised in past reviews, had not been sufficient to resolve the continued problems.

4) (U) In June 2007, Air Force Audit Agency audit AFAA F2007-0044-FCI000 identified that Ogden Air Logistics Center logistics personnel did not maintain or follow proper procedures to support the retention of excess asset quantities in inventory.

5) (U) In March 2008, Air Force Audit Agency audit AFAA F2008-0027-FCI000 identified that managers maintained excess assets in depot maintenance storage for which no future requirement was documented and did not maintain accurate inventory records for stored items.





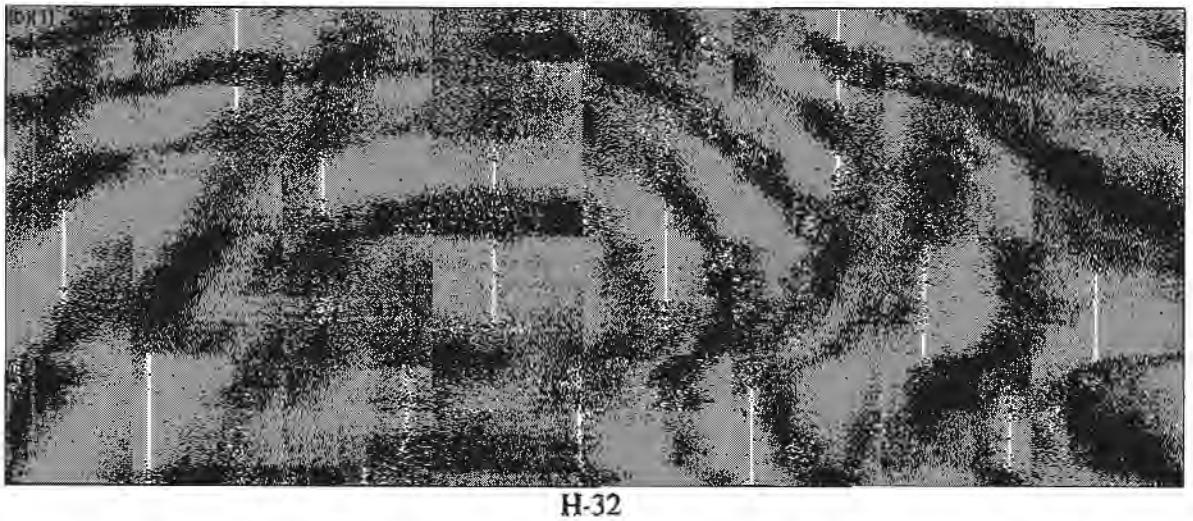
(b) (U) Previous reviews have identified supply system inventory control deficiencies similar to those problems identified by the Investigation Team:

1) (U) In July 2002, Government Accountability Office (GAO) Report GAO-02-617 identified that Air Force procedures for following up on shipments that contractors have not confirmed as received are ineffective, leaving the exact status of the shipments uncertain.

2) (U) In November 2005, Air Force Audit Agency Audit AFAA F2006-0003-FC4000 identified that depot supply personnel did not open and inspect shipping containers as required by AFJMAN 23-231 or submit Supply Discrepancy Reports as required by AJFMAN 23-215.

3) (U) In July 2006, AFMC Inspector General Unit Compliance Inspection of Oklahoma City Air Logistics Center identified that IMMs were not aware of the procedures to access and update the Reparable Item Movement Control System (RIMCS) and did not understand how to use the system.

4) (U) In November 2006, Inspector General Audit DOD IG D-2007-009 of inventory stored at Defense Logistics Agency Defense Distribution Depots identified that, among other problems and contrary to requirements, personnel did not always open boxes that were not factory sealed and remove and count the contents. In other cases, personnel did not validate condition codes and units of issue when conducting physical counts.

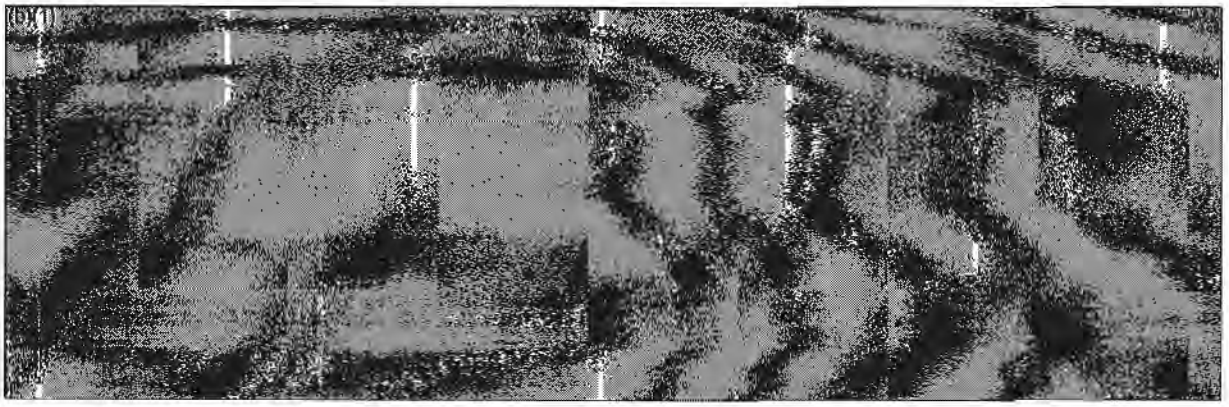


d. (U) Material Accountability Programs:

(1) (U) Deficiencies Associated with Munitions Accountability Transfer: The Investigation Team reviewed procedures for transferring custody of weapons with the 341st Space Wing and 5th Bomb Wing. The Investigation Team identified that the 341st Space Wing was not meeting some of the requirements incorporated into the 17 January 2008 revision to AFI 21-204. These requirements were implemented following the August 2007 Minot/Barksdale nuclear weapons transfer incident. Specific problems include:

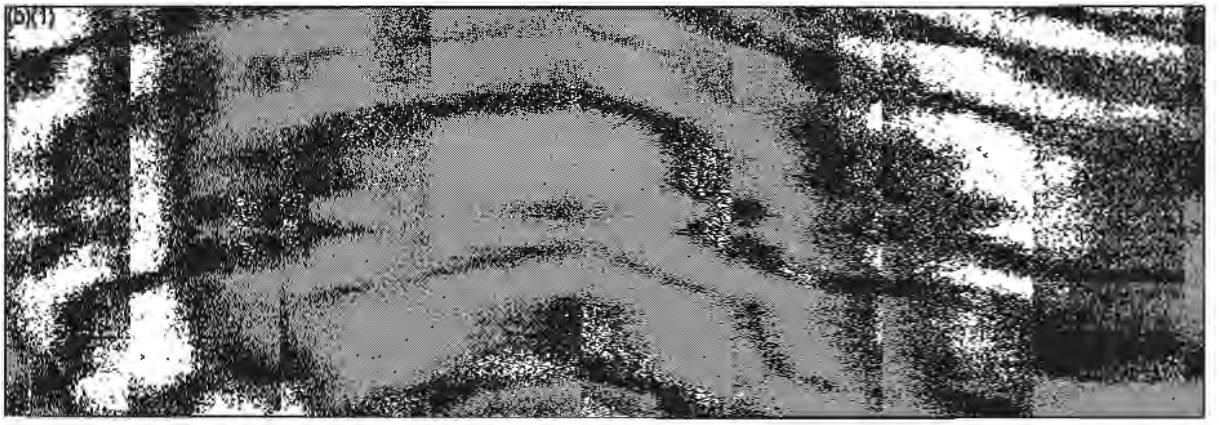
(a) (U) Contrary to paragraph 8.5.1.1.1 of AFI 21-204, the Munitions Accountable Systems Officer (MASO) for the 341st Space Wing did not have at least twelve months nuclear weapons maintenance management experience.

(b) (U) Contrary to paragraph 9.2.3.1.1.7 of AFI 21-204, during weapons transfer operations signed copies of form AF IMT 504 (Weapons Custody Transfer Document) are not being faxed by field personnel to the MASO. In discussions with the Investigation Team, the MASO indicated that the forms are not being faxed because most of the fax machines in the field are broken. Instead of the required fax copy with written signatures, field personnel are sending email copies of the AF IMT 504 forms that have the name of the responsible individual typed into the form.

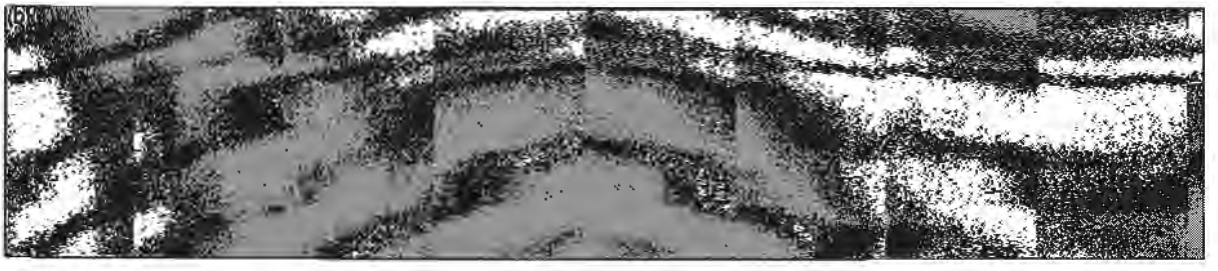


(a) (U) As discussed above, the MASO assigned to the 341st Space Wing does not meet the qualification requirements of AFI 21-204, and no

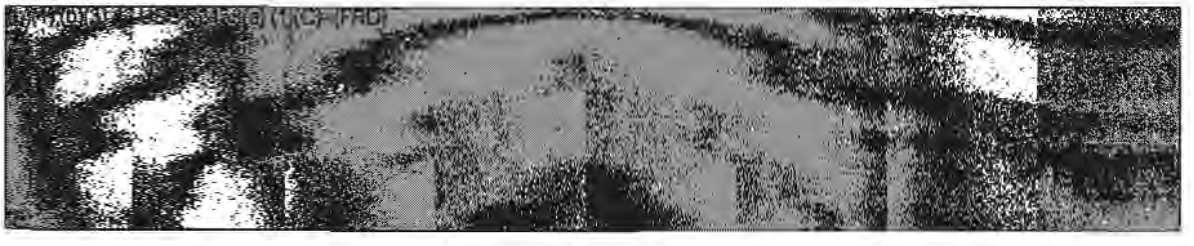
waiver has been submitted. The MASO assigned to the 5th Bomb Wing also does not meet this requirement; however an approved waiver has been obtained to allow this officer to serve as the MASO.

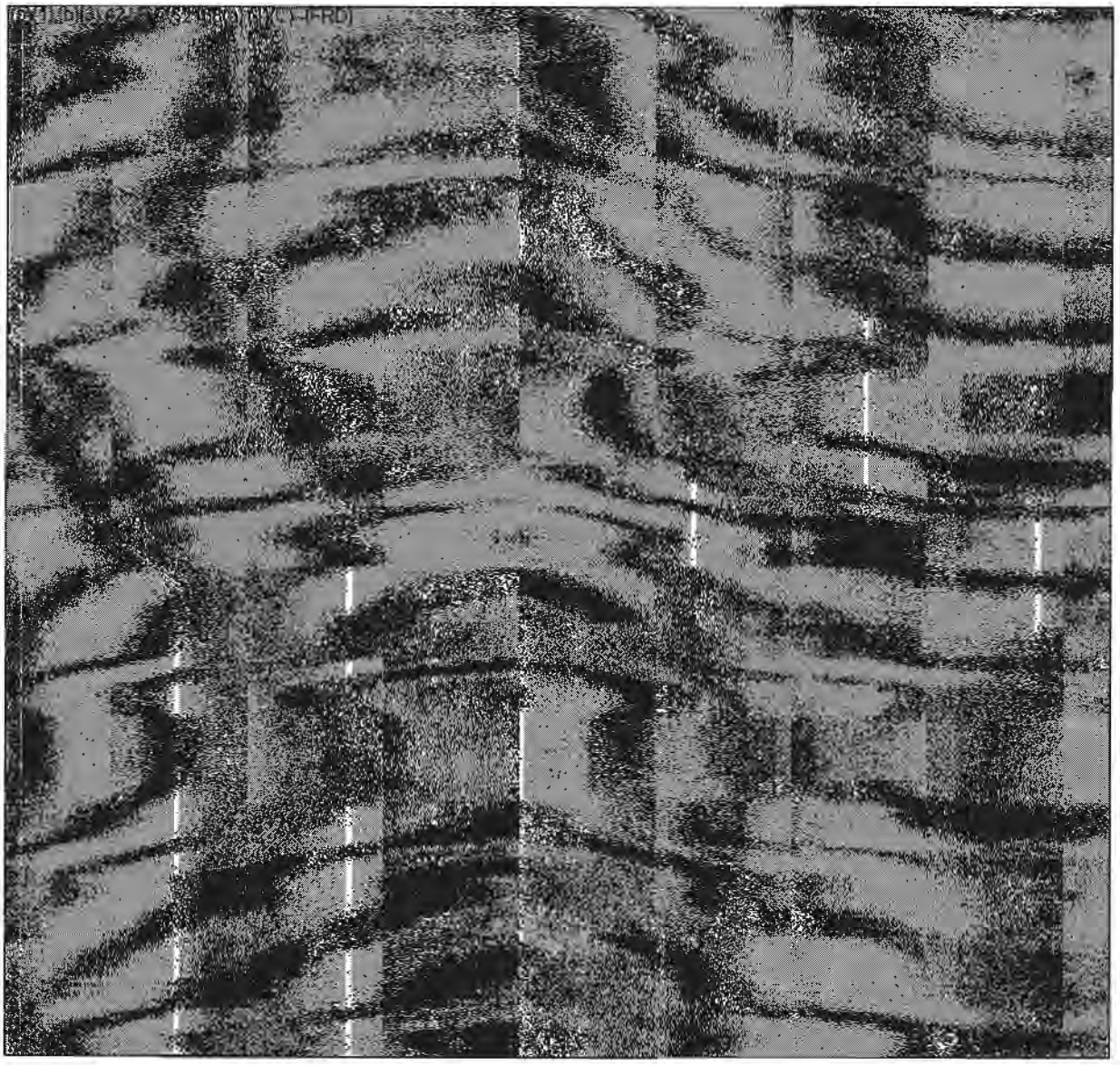


1) (U) The condition code tag for a screw (part number (b)(2)) identified in storage bin R8 Cab 3 within the USAL locker was labeled "MT" (empty) on the back of the tag, however, two assets were in inventory.



3) (U) Within the USAL storage cell, the condition code tag for washers (part number (b)(2)) did not accurately identify the number of washers in inventory.





Specific problems with the inventory certification paperwork included:

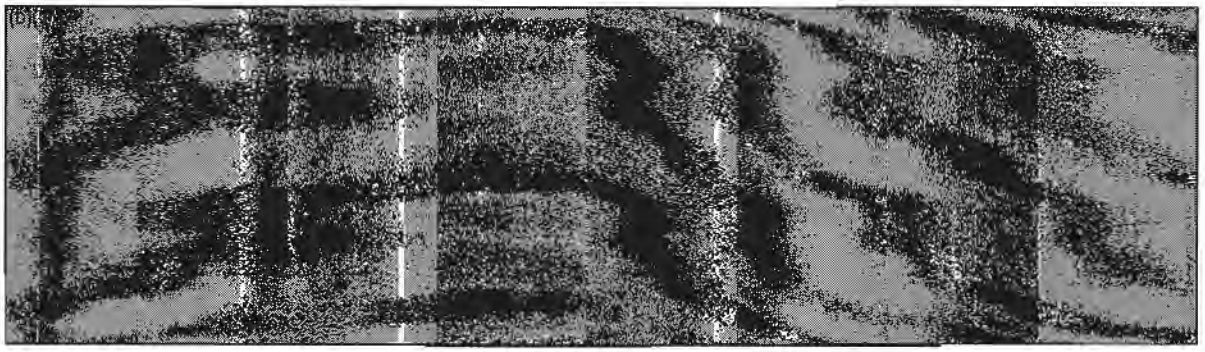
1) (U) Serial numbers and part numbers were not entered in the appropriate blocks on the inventory form. In some cases serial numbers were identified in part number blocks and part number blocks were identified in serial number blocks.

2) (U) Incomplete serial numbers and part numbers were entered on the inventory form. In some cases, the paperwork was not sufficient to reconstruct the full part or serial number.

3) (U) Numerous cases where part numbers, serial numbers, and storage locations were scribbled out.

(e) (U) The memorandum from the Explosive Ordnance Disposal group within the 341st Space Wing to the MASO identifying individuals authorized to request and receive NOCM items is out-of-date. Contrary to paragraph 8.5.2.1 of AFI 21-204, a pen and ink change was made by the 341st Space Wing to identify new primary and alternate individuals as reparable item custodians. AFI 21-204 requires a new letter for additions. Additionally, contrary to paragraph 8.5.2.1 of AFI 21-204, deletions from the list were indicated by "sep". AFI 21-204 requires the MASO to line out the individuals and initial the letter.

(3) (U) Deficient AFTO Form 95 Implementation:



1) (U) For reentry systems, the following requirements apply to the use of AFTO Form 95s:

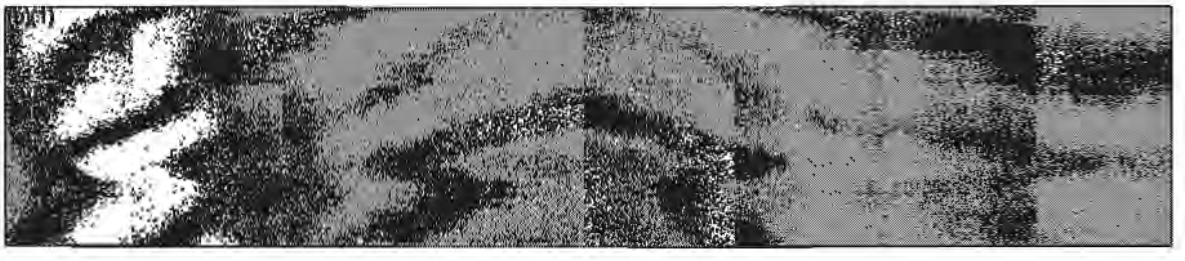
a) (U) Paragraph 4.1.26 of AFI 21-204 AFSPC Supplement 1, dated 1 December 2005, states that a record jacket will be established for each Minuteman III reentry system, and each unassociated MK-12, MK-12A and MK-21 reentry vehicle assigned. Paragraph 4.1.26.3 of this instruction further states that the AFTO Form 95 will be used to track RS targeting or fusing errors and corrective actions taken, Operational Testing, Service STAR, SLT, and information required by TO 00-20-series technical orders.

b) (U) Paragraph 10.4.1 of TO 00-20-1 (Aerospace *Equipment Maintenance Inspection, Documentation, Policies, and Procedures*) states that the AFTO Form 95 is a document for maintaining a permanent history of significant maintenance actions on end items of equipment.

c) (U) Paragraph 10.1.4 of TO 00-20-1 requires that historical documents, including AFTO Form 95s, be shipped with the component to disposal, storage activity, next using activity, or depot, unless otherwise directed.

d) (U) Paragraph 3.12.8 of TO 00-20-3 requires the AFTO Form 95 to accompany the asset when it is turned in from maintenance to the logistics readiness squadron.

b) (U) There are no 309th Maintenance Wing maintenance tasks identified as requiring AFTO Form 95, and the forms are not identified as required for reentry system parts worked by the 309th Maintenance Wing.



e. (U) Weaknesses in the Execution and Oversight of WSA INRAD (Intrinsic Radiation) Safety Program : During review of material control and work execution within the WSAs at F.E. Warren AFB, Minot AFB, and Malmstrom AFB, there were knowledge and performance weaknesses in several aspects of applicable Radiation Safety Programs including control of occupational radiation exposure and handling of radioactive material. Air Force documentation was inadequate to demonstrate that the current personnel and area radiation exposure monitoring practices are sufficient to ensure occupational radiation exposure is less than Air Force requirements for radiation exposure monitoring and maintained as low as reasonable achievable. The

Investigation Team found no evidence of recent oversight by authorities, either external or internal, of this program. Specific examples include:

(1) (U) As Low As Reasonably Achievable (ALARA) Principles: The Investigation Team identified the following deficiencies in meeting the requirements of AFI 91-108 (Air Force Nuclear Weapons Intrinsic Radiation Safety Program) and AFI 48-148 (Ionizing Radiation Protection):

(a) (U) Measuring Radiation Levels: The Investigation Team identified that workers were not knowledgeable of the actual radiation fields around the weapons, which would be required to assist them in limiting their exposure. Contributing to this knowledge weakness was the lack of in-process radiation surveys performed during operations to validate expected radiation levels.

(b) (U) Tracking Exposure Returns: The Investigation Team identified that personnel within the WSAs were not generally knowledgeable of expected exposure returns for given operations. In most cases, WSA personnel were not familiar with the nuclear asset's contact radiation level provided in the corresponding technical order.

(2) (U) Radioactive Material Handling: The Investigation Team identified knowledge and process weaknesses associated with the special handling requirements for radioactive waste. The Investigation Team identified that waste was commingled with other material when expended "X" kits were used to support training and questioned this process. Other than a perceived allowance in the base technical order, WSA personnel could not explain the technical basis for allowing potentially contaminated waste to be used in support of training. This practice could potentially spread radioactive contamination and introduces vulnerabilities in the ultimate evaluation and disposal of the material via the correct disposition path.

(3) (U) Air Force Response to Above Observations: The Investigation Team identified weaknesses in the oversight practices provided to operations associated with occupational exposure to ionizing radiation. The Investigation Team discussed the above performance and knowledge weaknesses with the Radiation Safety Office (RSO) at F.E. Warren AFB and the Radioactive Materials Licensing and Safety Chief, Nuclear Weapons Safety Branch, Headquarters Air Force Safety Center. The following was identified during these discussions:

(a) (U) Radiation Exposure Studies: Previous studies were performed from 1995-1998 and identified that the highest dose rate for any WSA work evolution was 13.5 mrem/hour and the highest overall dose per year for any worker was 132 mrem, with an average exposure of 47 mrem. The WSA operational history

and specific operations conducted during the performance of the studies were unknown. Therefore, it is not clear whether these conditions, or the studies' conclusions (that individual monitoring is not required), can be applied to current operational conditions across all WSAs.

(b) (U) Radiological Controls Oversight: The Investigation Team identified that neither the RSO nor local medical department personnel perform inspections or oversight of operations involving occupational exposure to ionizing radiation within the WSA.

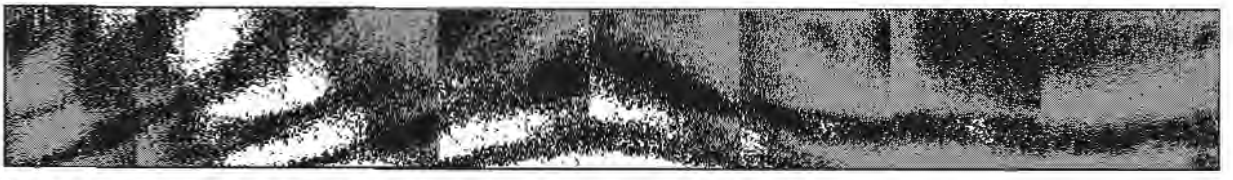
(c) (U) Oversight of Mixed Waste Practices: The responsibility for oversight of mixed waste resides under the base's Civil Engineering Group. During a discussion with the Investigation Team, the F.E. Warren AFB civil engineer that is cognizant of mixed waste requirements within the WSA, stated he often experiences resistance from the 90th Space Wing to gain access to the WSA and, as a result, has limited access to conduct routine surveillances of the mixed waste satellite accumulation area.

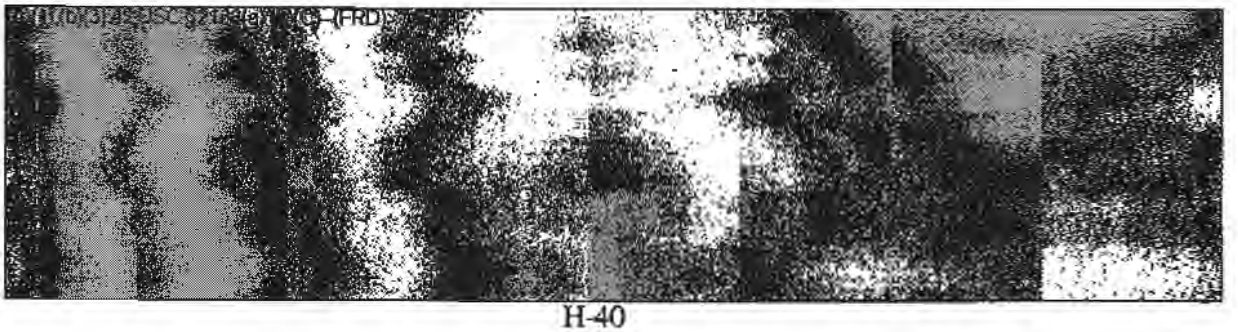
(d) (U) Headquarters Oversight of Radiological Controls: The Investigation Team identified little direct oversight is provided to field operations. Additionally, based on review of data from recent studies conducted to ensure occupational exposure to Air Force personnel is less than Air Force requirements for radiation exposure monitoring, the Investigation Team identified deficiencies that require further evaluation by the Air Force. Specifically:

1) (U) Although the Radioactive Materials Licensing and Safety Chief is responsible to establish Air Force radiation safety policy, neither the Radioactive Materials Licensing and Safety Chief nor his staff conducts reviews or audits operations at F.E. Warren, Minot, and Malmstrom WSAs. The Air Force Safety Center relies on the center's Health Service Inspectors to review local command's radiation safety requirements. The Safety Center acknowledged to the Investigation Team that Health Service Inspectors rarely, if ever, review WSA operations because of local access restrictions.

2) (U) The Investigation Team identified that the documentation available for review was not adequate to demonstrate that the current personnel and area radiation exposure monitoring practices are sufficient to ensure occupational radiation exposure is less than Air Force requirements for radiation exposure monitoring and maintained as low as reasonable achievable. The Investigation Team reviewed an exposure evaluation conducted at Kirtland Air Force Base from August 2006 through December 2007 and identified that the highest documented individual occupational exposure out of the seventy monitored Air Force

personnel was 435 mrem. The results from this recent evaluation were used to confirm the decision that personnel dosimetry monitoring is not required based on all results measuring less than 500 mrem . The Investigation Team reviewed the data and identified that the documented returns do not address what operations were performed during the monitoring cycle, the reason that one individual received 210 mrem (three times his coworkers and all beta/gamma radiation exposure) in one quarter, and that only two workers received any exposure in the last quarter. Additionally, the Air Force Safety Center and the RSO at F.E. Warren AFB were not able to discuss the basis for not requiring personnel and area monitoring at F.E. Warren.





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g. (U) Standardization of Best Practices: The Investigation Team identified that the Air Force is not capturing and implementing best practices between the three WSAs (Minot, Malmstrom, and F.E. Warren) reviewed by the Investigation Team. For example, the Investigation Team identified several process improvements in use only at Malmstrom such as modernized electronic storage lockers and equipment and tooling staging mats for Support Shroud and Ball Lock Stand operations. The Investigation Team discussed the benefits of standardization at each of the WSAs and was informed that with the exception of personnel transfers, few if any, best practices are exchanged or standardized. The Investigation Team was also informed that as a result of the inconsistencies between the WSAs, personal qualifications must be re-performed when transferring directly from one WSA to another.

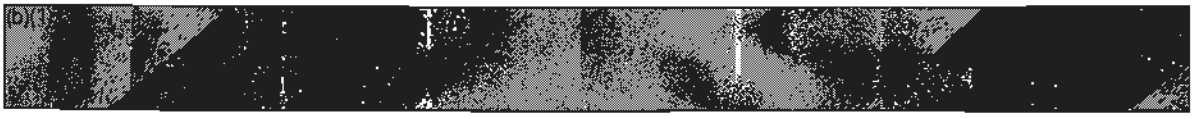
APPENDIX I

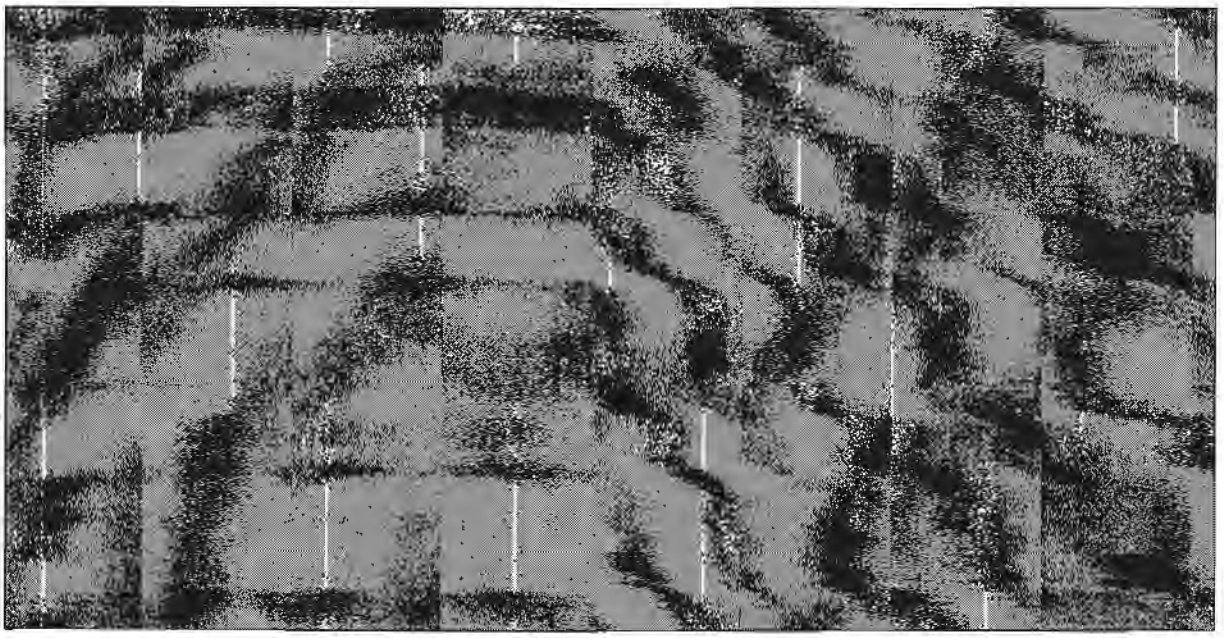
(U) WEAKNESSES IN THE CONDUCT, RESPONSE, AND OVERSIGHT OF COMMAND INSPECTIONS INVOLVING NUCLEAR-RELATED OPERATIONS

(U) The Investigation Team reviewed Air Force inspection reports documenting the conduct and results of various inspections at the Ogden Air Logistics Center, Hill AFB, the 90th Space Wing at F.E. Warren AFB, the 91st Space Wing and 5th Bomb Wing at Minot AFB, and the 341st Space Wing at Malmstrom AFB. The inspection reports reviewed included those generated from Nuclear Surety Inspections (NSIs), Compliance Inspections (CIs), Staff Assistance Visits (SAVs), Logistical Standardization and Evaluation Team (LSET), and Operational Readiness Inspections (ORIs). The review identified weaknesses in the conduct of the inspections including inconsistencies in how the Major Commands (MAJCOMs) document inspections and classify identified deficiencies. Additionally, the Investigation Team identified weaknesses in the causal analysis and corrective actions in response to deficiencies identified during the inspections. Finally, the Investigation Team identified weaknesses in the oversight of the inspection processes. The Investigation Team concludes that overall weaknesses in Air Force inspection programs contributed to missed opportunities in identifying and correcting the systemic problems that led to the improper shipment of the MK-12 forward section assemblies to Taiwan.

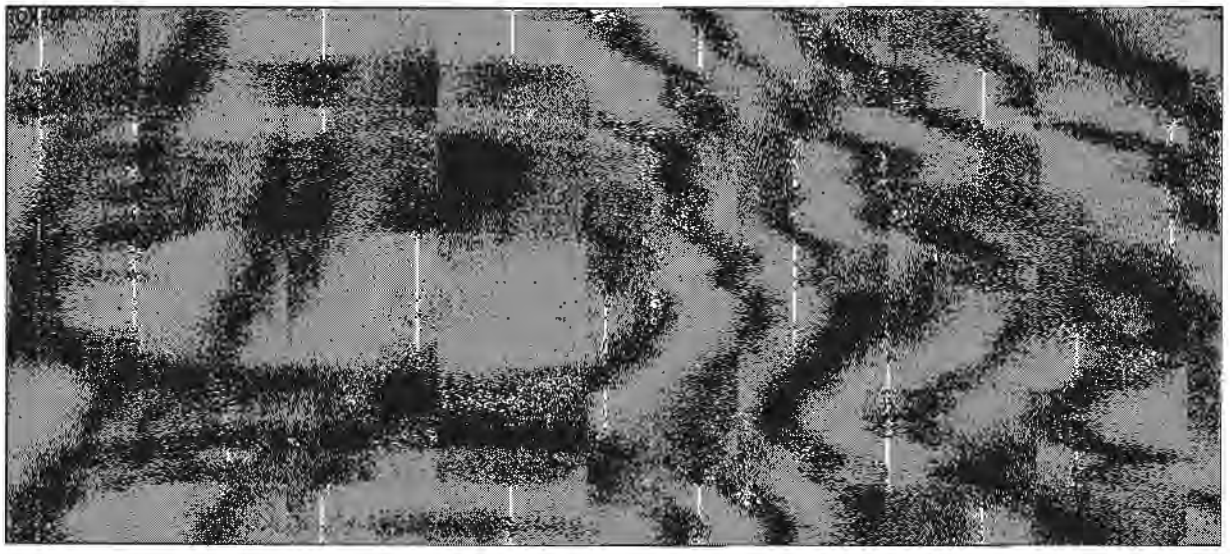
1. (U) **Identification, Causal Analysis and Resolution of Systemic Problems**: The Investigation Team noted weaknesses in problem identification, causal analysis and resolution of systemic problems found during routine Air Force inspections. The problems identified by the Investigation Team indicate general weakness at all levels to recognize systemic problems, root causes, and the development of corrective actions.

a. (U) Missed Opportunities by Inspection Teams to Identify Systemic Problems: The Investigation Team identified several inspections where the Air Force documented deficiencies that indicate a more systemic problem associated with compliance with procedures and trained work practices for the control and execution of maintenance on Minuteman III ICBM systems. In almost every case, each deficiency was classified as minor, assigned a simple cause code by the inspection team, and was adjudicated by narrow corrective actions isolated to the specific finding by the inspected command. Opportunities were missed by the inspection team in the recognition and development of more fundamental problems affecting the performance of the inspected command. Specifics include:

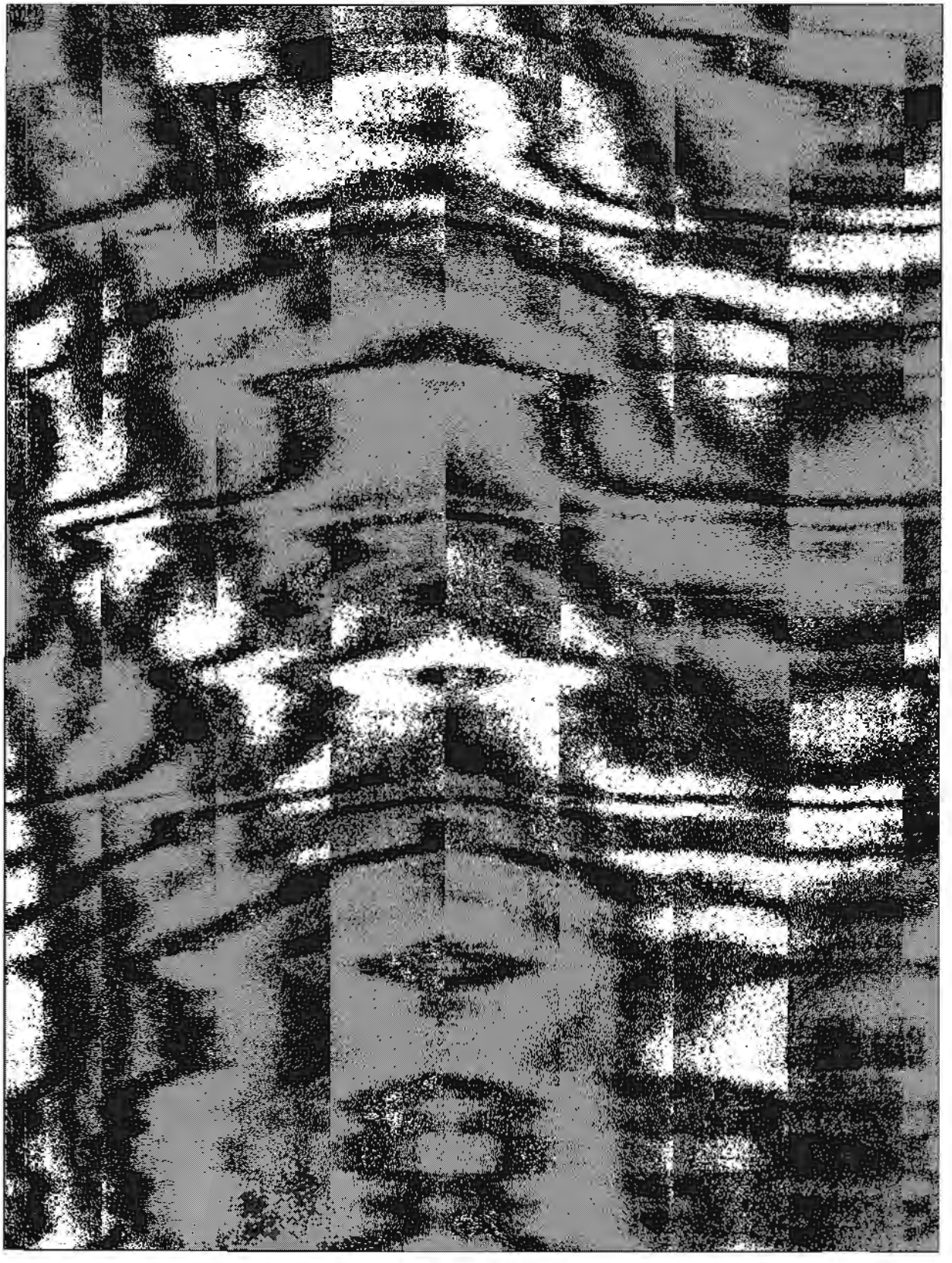


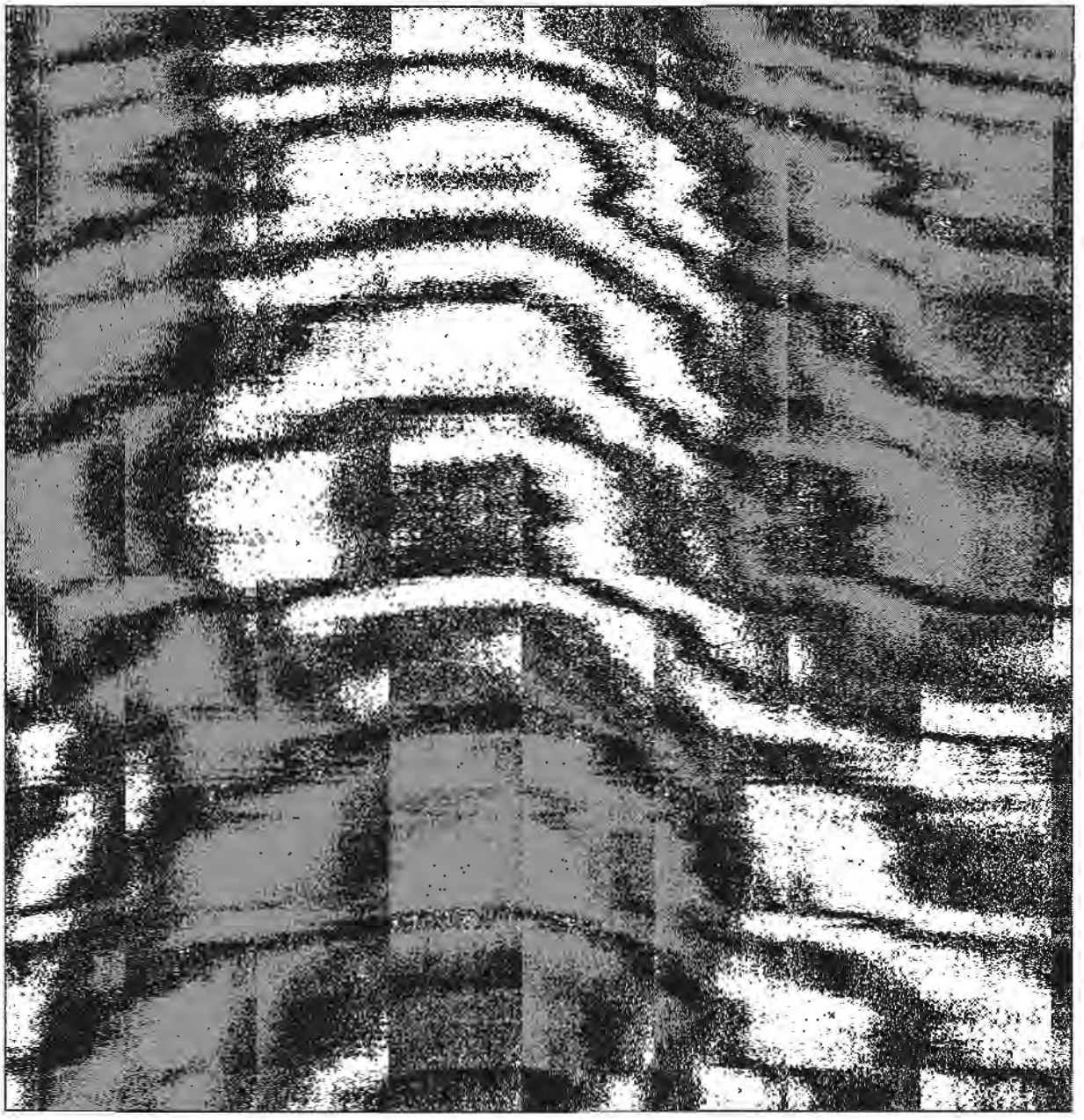


(2) (U) The 2006 NSI conducted at the 341st Space Wing identified three deficiencies identified as minor associated with Technical Operations conducted by the 341st Missile Maintenance Squadron. Specifically, the NSI Team identified that (1) the maintenance group was not using step tracking as required during an evolution; (2) the maintenance technicians were not using the correct tool to perform the task; and (3) the supervisor did not correctly warn the workers of a caution step prior to the workers performing the step as required. "Oversight" was cited by the inspection team as the cause for each deficiency. The action taken by the 341st Space Wing included obtaining the correct tool and a briefing on the importance of procedures. The documented action states that "[a] simple reminder of procedures is enough to correct discrepancy."



Appendix I: Weaknesses In The Conduct, Response, And Oversight Of Command Inspections Involving Nuclear-Related Operations





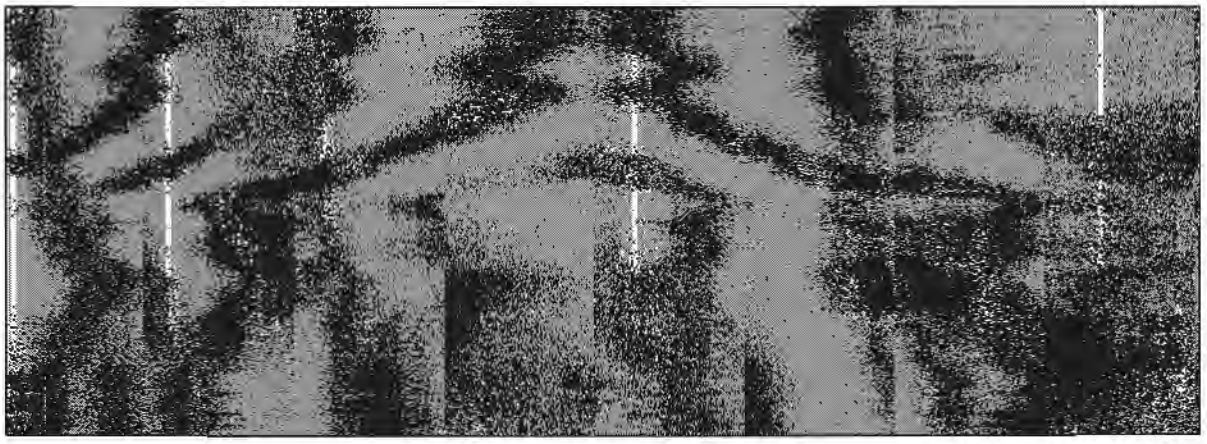
b. (U) Lack of Detailed Causal Analysis By the Inspected Command:

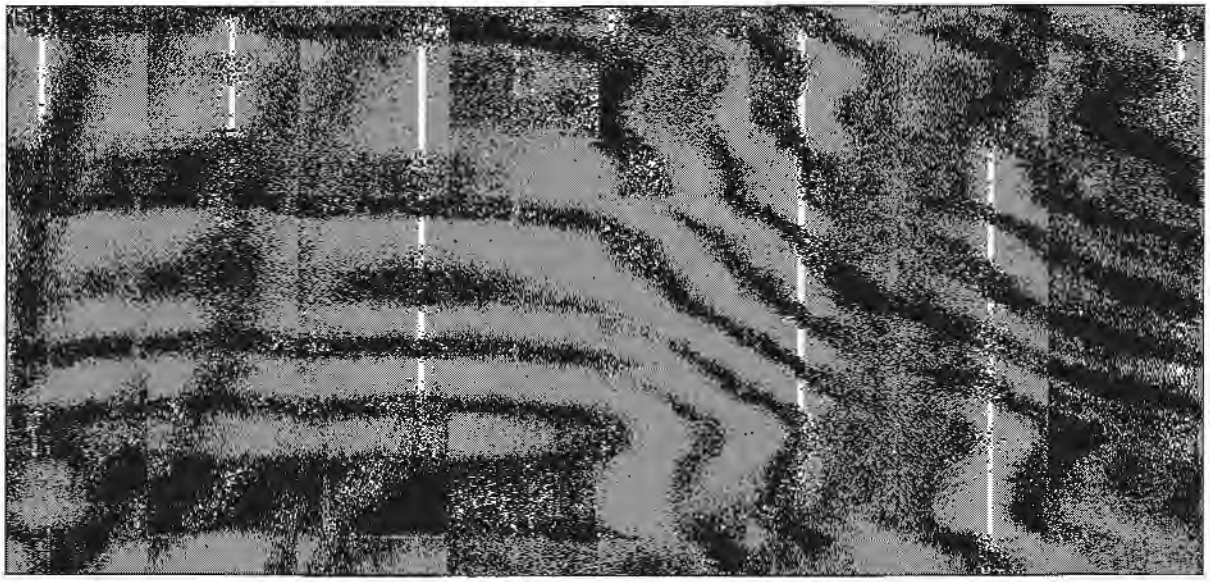
(1) (U) AFI 90-201 (Inspector General Activities) requires the assignment of a root cause code for all findings within the report. Additionally, the Air Force Instruction provides a list of possible root cause codes that are used for assignment to the individual deficiencies. These root causes are one or two word categories rather than a full description of the underlying issues. As a result, the root causes entered into the report and tracking database lack sufficient detail to enable

thorough analysis and identification of long-term corrective actions to correct the root issue.

(2) (U) Each Air Force inspection team is required by AFI 90-201 to assign a cause to the identified deficiency. The Investigation Team considers that this practice results in the removal of ownership of the deficiency from the inspected command. Additionally, without detailed review and analysis of the finding, it is not clear how an inspector would fully understand root cause without being part of the inspected command. An effective causal analysis of more significant problems and trends of minor problems would include a review to validate and understand the finding through analysis of the performance of personnel and processes within the command.

c. (U) Missed Opportunities By the Inspected Command in Responding to Problems Identified by NSI Teams: The Investigation Team identified examples where the inspected command failed to recognize that more systemic problems existed from the deficiencies identified by the NSI Teams. In the examples noted above, review of corrective actions taken by the inspected command identified that their actions were primarily focused on the individual problems without consideration of potential negative trends and fundamental problems at the root of the deficiencies. In each of the examples above, the deficiencies identified by the inspection team indicate potential procedural compliance and supervisory issues during the conduct of work. A majority of the actions taken in response to the findings were either briefings or additional training. Based on the similar nature of the findings from inspection to inspection, the Investigation Team concludes that the approach taken by the Air Force in responding to identified deficiencies has not been effective. A wider view and analysis of the identified deficiencies and routine command follow-up during similar evolutions would lead to the development of more meaningful causes and corrective actions.



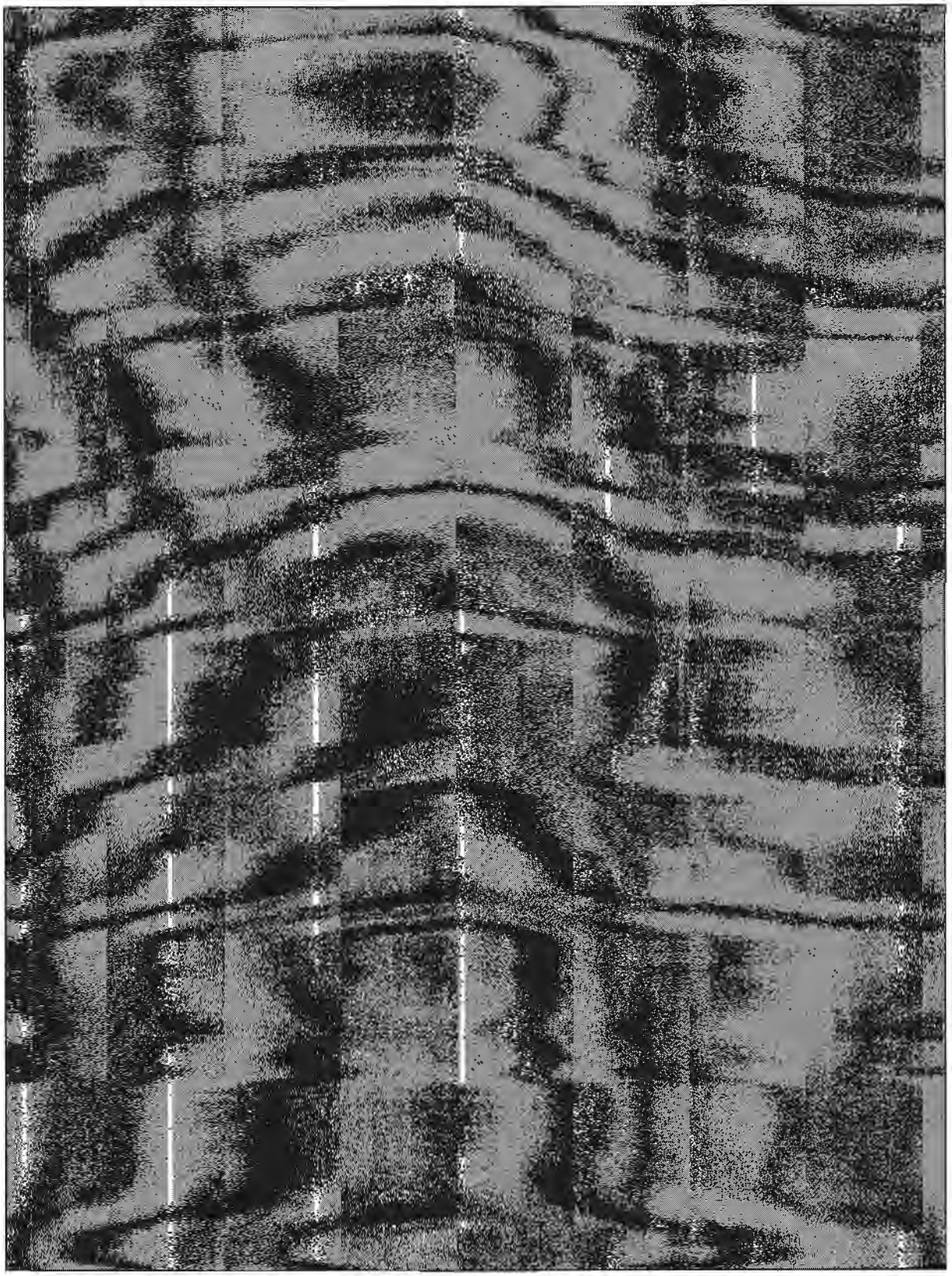


b. (U) Identification and Documentation of Findings: The Investigation Team identified a number of examples of inconsistent documentation of deficiencies identified during inspections, inconsistent classification (i.e., CRITICAL, MAJOR, MINOR) of identified deficiencies, and inconsistent methods of tracking causes and actions in response to identified deficiencies.

(1) (U) Documentation: The Air Combat Command and Air Force Space Command are not consistent in methods for documenting and tracking deficiencies identified during the inspections. Specifically, the two most recent reports for NSIs conducted by the Air Combat Command (December 2004 and June 2006) did not include documentation of any minor deficiencies requiring corrective actions. This is inconsistent with the Air Force Space Command practices and is contrary to the requirements of AFI 90-201. Rather, the Air Combat Command documented minor deficiencies as "Recommended Improvement Areas." The 5th Bomb Wing was not able to provide any documentation that actions are taken for Recommended Improvement Areas and it is not clear whether or not any action was taken for the minor deficiencies identified and documented in this manner. Examples of deficiencies that appear more significant but were documented as Recommended Improvement Areas by the Air Combat Command NSI Team include:

(a) (U) The 2004 NSI documented that quality assurance did not meet mandatory monthly personnel evaluation requirements as required by AFI 21-204 (Nuclear Weapons Maintenance).

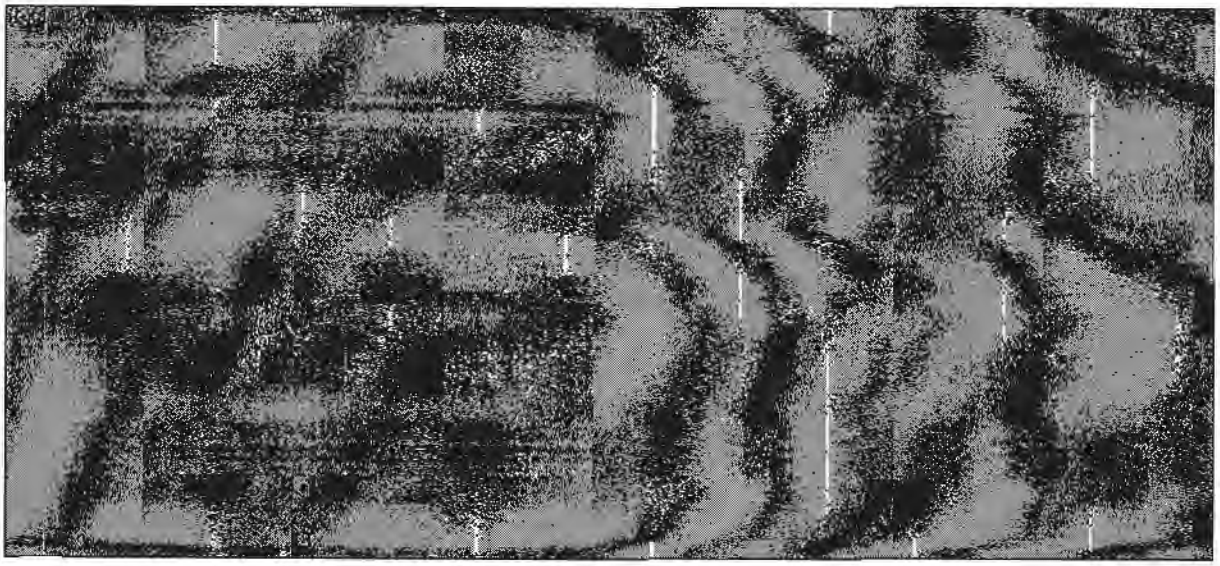
Appendix I: Weaknesses In The Conduct, Response, And Oversight Of Command Inspections Involving Nuclear-Related Operations

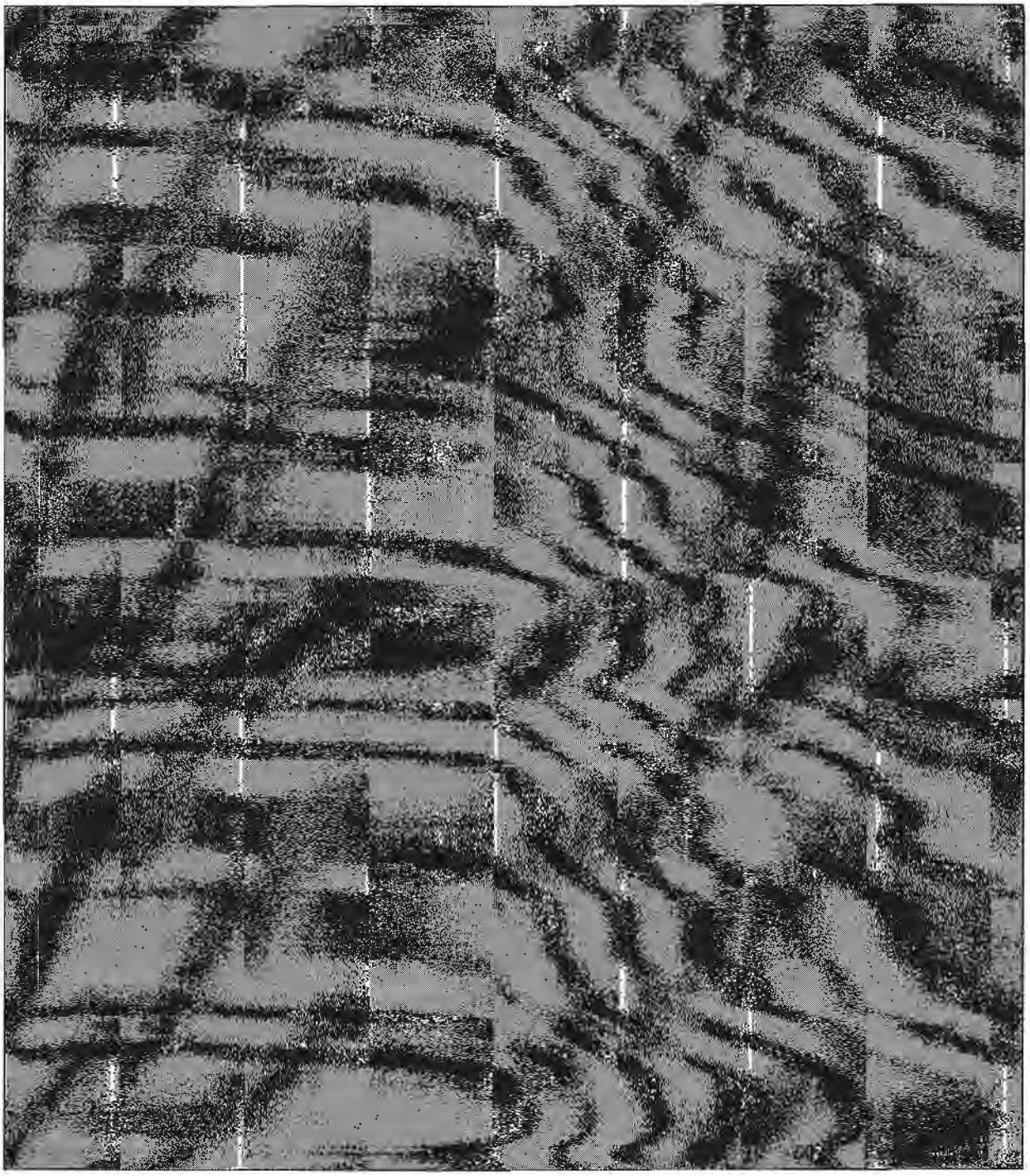


(c) (U) The Team identified a minor finding in the February 2005 NSI report for the 90th Space Wing, where the Explosive Ordnance Disposal silo team did not adhere to silo work cage safety procedures. The report stated that personnel entered the cage prior to fully completing the "prior to use" checklist. In contrast, the same section of the report identified failure to perform monthly fire extinguisher checks as a major finding.

(3) (U) Corrective Action Tracking: Air Force Space Command and the Air Combat Wing and the 5th Bomb Wing do not have consistent practices associated with the documentation of deficiencies identified during inspections. The Air Force Space Command developed and uses the Finding and Action Tracking System (FATS) to document each finding (CRITICAL, MAJOR, and MINOR) identified during inspections at each missile wing. Space Command uses FATS to document the findings and corrective actions taken. Additionally, the database is used to document closure of the finding following review by appropriate supervision as required by AFI 90-201. This database is not used by the 5th Bomb Wing. The lack of a comprehensive shared system limits the ability to recognize and trend deficiencies across the activities performing similar maintenance and handling of weapons and their components.

3. (U) **Oversight of Inspection Processes for Nuclear-Capable Commands**: The Investigation Team identified that the Air Force Nuclear General Officer Steering Group (AFNGOSG) has been taking some actions to standardize the conduct of NSIs focused on establishing a core NSI team and addressing the scheduling of the inspections. However, based on the Investigation Team's observations documented above, additional action may be needed to expand the process and performance reviews to ensure the scope of actions being taken is appropriate.





b. (U) Air Force Nuclear General Officer Steering Group (AFNGOSG): The AFNGOSG was established in 1997 and generally meets twice a year to review recommendations and initiate actions to ensure the nuclear capability of the Air Force is maintained. Specific to NSIs, the Investigation Team identified that the AFNGOSG reviews recent statistics from NSIs and actions being taken in response to perceived

performance trends from the inspections. The statistical data reviewed by the steering group consists of a high-level view of the functional areas reviewed during an NSI (i.e., Personnel Reliability Program, Safety, Technical Operations, Security, etc) and trends the number of major and minor findings in each functional area over the past five years. The Investigation Team considers the data set used to present the NSI statistics is limited to a high tier assessment that lacks sufficient detail for the AFNGOSG to understand and evaluate if trends and associated corrective actions are adequately identified. This understanding and evaluation in sufficient detail would be necessary to enable the AFNGOSG to implement programmatic actions where needed to address the more global problems across each Major Command.

APPENDIX J

HISTORY OF MATERIAL CONTROLS ASSOCIATED WITH THE MANAGEMENT OF MK-12 FORWARD SECTION ASSEMBLIES

References: (a) (U) AFI 21-204, Nuclear Weapons Procedures, 5 Aug 94
(b) (U) AFI 21-204, Nuclear Weapons Maintenance Procedures, 17 Jan 08
(c) (U) AFMAN 23-110, Air Force Supply Manual
(d) (U) HQ USAF/A4M Memorandum for Director, Naval Nuclear Propulsion Program of 9 Apr 08

1. (U) Background: The requirements associated with control of MK-12 forward section assemblies have changed over the past twenty years. Individual command-level decisions lacked an appreciation for system wide consequences and were based on an inadequate assessment of the risks posed by abandoning the rigorous material controls of a dedicated activity and turning over responsibility to activities without the capabilities or appreciation for the need for such controls. While flawless execution within the Air Force supply system could have ensured proper material management, inherent execution weaknesses in the supply system (which may be acceptable for less sensitive material) and the absence of the backup provided by robust enterprise oversight allowed the shipment of the MK-12 forward section assemblies to Taiwan.

(U) This appendix summarizes the history of the changing logistics controls for the MK-12 forward section assemblies. This appendix was developed based on reviews of historical instructions, memoranda, guidance, and interviews with personnel formerly involved with control of such material.

2. (U) Nuclear Ordnance Commodity Material (NOCM): In 1994, reference (a) stated that "Material management code 'CM' identified NOCM items." The reference also stated that for NOCM items, the code 'CM' "is suffixed to the national stock number (NSN)." In 1990, the NSN for the MK-12 forward section assemblies was NSN (b)(2) Based on the definition in reference (a), this CM suffix indicated that the MK-12 forward section assemblies were controlled under the NOCM system.

3. (U) Material Controls Between 1952 and the late 1990s:

a. (U) In February 1952, the 2837th Specialized Depot Group was established by the San Antonio Air Material Area at Kelly AFB and assumed

responsibility for what was then known as Class 09-D items - nuclear ordnance commodity managed items.

b. (U) In April 1973, the San Antonio Air Logistics Center (SA-ALC) was designated as the Technical Repair Center for the Intercontinental Ballistic Missile (ICBM) systems. The center was established to maintain items with similar technical characteristics, facilities needs, tools and test equipment.

c. (U) In December 1974, the Nuclear Ordnance Logistics Support (NOLS) system was used as a central data base for worldwide visibility of nuclear weapons and associated other assets. NOLS ultimately was improved and designated as the Advanced Nuclear Ordnance Logistics System (ANOLS)[1]. ANOLS provided logistics support functions, such as cataloging and standardization, requirements computation, distribution, equipment allowances and authorization, production management, maintenance, and technical services.

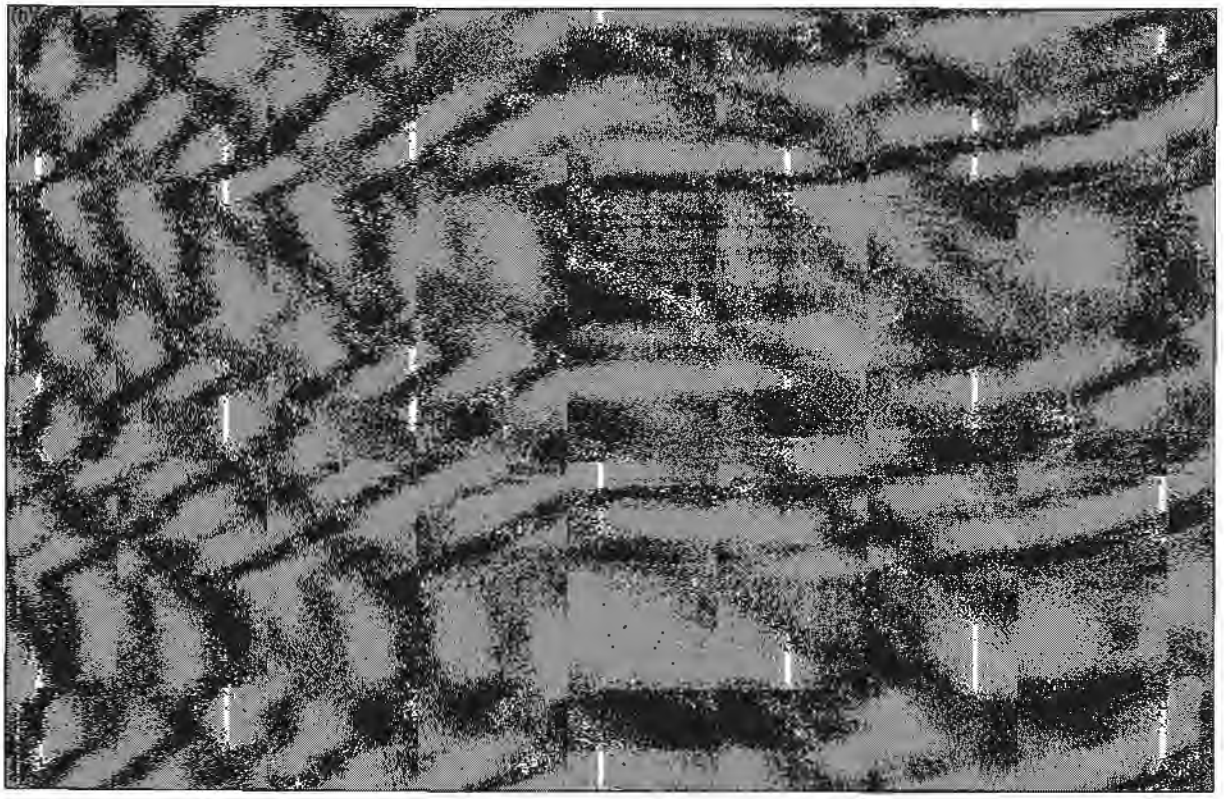
d. (U) From the late 1970s through at least June 1996, SA-ALC operated ANOLS, depot maintenance facilities, and a dedicated item management staff. During this period, when serial numbers existed on equipment (such as the MK-12 forward section assembly), the serial number for the individual component was included in the ANOLS database and was used to support the management of receipts and issues.

e. (U) Until the late 1990s the Nuclear Weapons Directorate at SA-ALC managed and controlled the Air Force's nuclear weapons programs, including nuclear weapons support activities at three locations: (1) Kelly AFB, TX; (2) Kirtland AFB, NM, and (3) and an Operating Location at (b)(3):10 USC §128 The Nuclear Weapons Directorate was directly responsible for nuclear weapons support product management, nuclear ordnance commodity management using ANOLS, warehousing, cataloging, and depot maintenance. These responsibilities included operation and staffing of warehouse facilities with a segregated area for the receipt, handling and storage of classified equipment such as the MK-12 forward section assembly. The Air Force Nuclear Weapons Directorate was responsible for managing 11,796 Air Force nuclear ordnance-related managed items and acted as the Air Force coordinating activity for another approximately 4,000 Department of Energy (DOE) managed nuclear items. The MK-12 forward section assembly was a classified component within the group of 11,796 Air Force managed nuclear ordnance-related items.

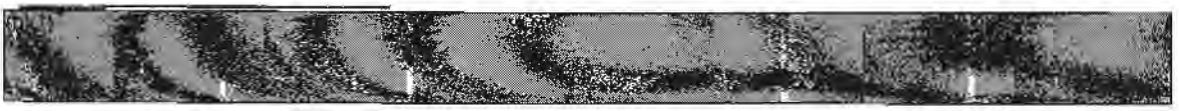
[1] The Investigation Team was unable to determine the date that ANOLS was initially implemented.

4. (U) Actions Taken in the 1990s:

a. (U) In September 1996, the Air Force initiated a Business Process Improvement through a pilot program for direct vendor delivery of nuclear spares (DOE managed items) from a DOE contractor (Allied Signal). The pilot program provided for inventory management, maintenance, and distribution of spares by the contractor. Upon a need for a spare, an authorized Air Force maintenance technician contacted the contractor via fax or web site with the information necessary to obtain the spares required. The contractor, after validating the authority and the requirement, directly shipped the item to the requester. The contractor provided monthly reports to Defense Threat Reduction Agency (formerly the Defense Special Weapons Agency) and the Nuclear Weapons Directorate at SA-ALC identifying on-hand balances and back orders. As a result of the pilot program, the Air Force decided to implement direct vendor support concept for all DOE managed items for which the Air Force was a user (approximately 4000 items).



d. (U) In the same time period as the BRAC action, the Air Force was also shifting to an Integrated Weapon System Management concept developed by the Air



Force Materiel Command. The vision for the new management concept included the following elements:

(1) (U) Cradle-to-grave management of the weapon system;

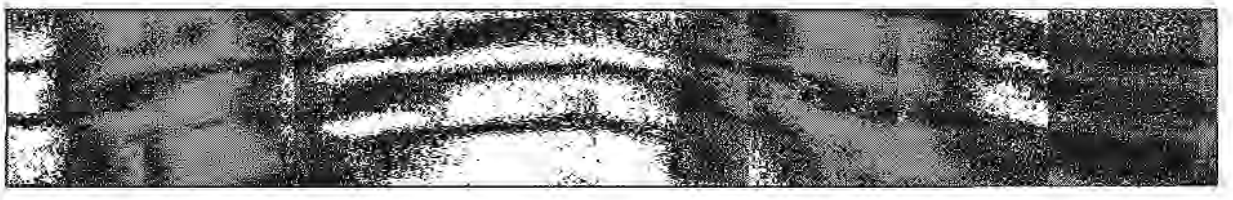
(2) (U) Management by the applicable system program office, a single organization that is solely responsible for the management of the weapon system or commodity; and

(3) (U) Weapon system or commodity management activity is a seamless organization that operated with critical processes that are integrated across the life cycle.

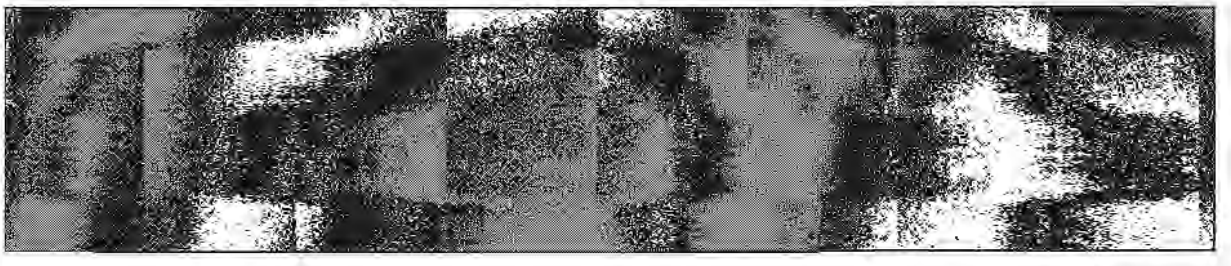
e. (U) A memorandum dated 15 July 1999 was issued from HQ AFMC/LG (signed by the Deputy Director, Directorate of Logistics) with the subject "Transfer of Responsibility for nuclear ordnance commodity management (NOCM) Assets from SA-ALC to Other AFMC Depots." This memo directed:

(1) (U) Items will be stock funded;

(2) (U) The term NOCM was no longer valid. (The memorandum discusses a decision made to mainstream NOCM items and transfer them to the three ALCs, doing away with nuclear item commodity management); and



f. (U) In a message dated 5 October 2001, HQ AF Space Command (Peterson AFB) provided the following direction to all missile maintenance wings, operational bases, and Ogden Air Logistics Center on the subject of "Management of NOCM Assets":



(2) (U) "This is a change in the way we do business and ensures free issue to units and will guarantee that OO-ALC has the standard system data to continue long-term support for our systems."

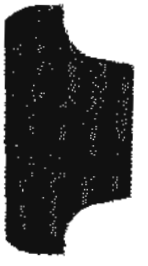
(3) (U) "Any on-hand balances maintained by the Munitions Accountable Systems Officer (MASO) should be turned into base supply." This sentence indicates that the MASO at one time had control of the equipment under NOCM procedures. The duties and responsibilities of the MASO are contained in AFI 21-204 (Nuclear Weapons Maintenance Procedures).

(4) (U) The message concludes with "NOCM items with MMAC CM code should only be items that are ordered from Department of Energy (DOE) Honeywell Contractor, Kansas City."

5. (U) Current Material Control Practices:

a. (U) Reference (b) defines "Nuclear Ordnance Controlled Materiel (NOCM)" as "All items used on or with any nuclear weapons, which must be specifically controlled because of design, security, or quality control requirements. These include DOE special design items and DOE controlled commercial items, collectively referred to as Base Spare items and include Military special design items and Military controlled commercial items, collectively referred to as Military Spares."

b. (U) By reference (d), HQ USAF/A4M (Director of Maintenance) informed the Investigation Team that the Air Force considers the MK-12 reentry vehicle forward section as a service spare that is controlled and accounted for in the Standard Base Supply System (SBSS) using procedures in reference (c).



APPENDIX K

GLOSSARY OF ACRONYMS (U)

A&S	Aging and Surveillance
A4/7	Installation, Logistics, Mission Support
AF	Air Force
AFAA	Air Force Audit Agency
AFB	Air Force Base
AFMC	Air Force Materiel Command
AFMC/A4	Air Force Materiel Command/Director, Logistics
AFMCI	Air Force Materiel Command Instruction
AFI	Air Force Instruction
AFIA	Air Force Inspection Agency
AFJMAN	Air Force Joint Manual
AFMAN	Air Force Manual
AFNGOSG	Air Force Nuclear General Officer Steering Group
AFPD	Air Force Policy Directive
AFSPC	Air Force Space Command
AFSPC/A4	Air Force Space Command/Director, Logistics
AFTO	Air Force Technical Order
AIT	American Institute of Taiwan
ALARA	As Low As Reasonably Achievable
ALC	Air Logistics Center
ANOLS	Advanced Nuclear Ordnance Logistics System
ATP	Acceptance Test Procedure
BRAC	Base Realignment and Closure
CAS	Combat Ammunition System
CD	Compact Disc
CFR	Code of Federal Regulations
CGA	Continuing Government Activity
CI	Compliance Inspections
CLFA	Closed Loop Failure Analysis
CMOS	Cargo Movement Operations System
DAASC	Defense Activity Addressing System Center
DDC	Defense Distribution Center
DDHU	Defense Distribution Depot Hill, Utah
DIAMONDS	Defense Integration and Management of Nuclear Data Services
DLA	Defense Logistics Agency
DLAI	Defense Logistics Agency Instruction
DOD	Department of Defense

DODAAC	Department of Defense Activity Address Code
DOE	Department of Energy
DR	Discrepancy Report
DSCC	Defense Supply Center Columbus, OH
DSCR	Defense Supply Center Richmond, VA
DSS	Distribution Standard System
DTR	Defense Transportation Regulations
DTRA	Defense Threat Reduction Agency
EG&G	DDHU Warehouse Contractor Company
FATS	Finding and Action Tracking System
FEDEX	Federal Express Shipping Company
FMS	Foreign Military Sales
FTE	Full Time Equivalent
FY	Fiscal Year
GLSC	Global Logistics Support Center
HAF/A7S	Headquarters Air Force/Logistics, Installations and Mission Support, Director of Security Forces
HMIRS	Hazardous Material Information Resource System
HQ	Headquarters
HQ USAF	Headquarters, United States Air Force
ICBM	Intercontinental Ballistic Missile
IMM	Integrated Material Manager
IPIC	ICBM Prime Integration Contract
IT	Information Technology
LNSI	Limited Nuclear Surety Inspections
LRS	Logistics Readiness Squadron
LSET	Logistical Standardization and Evaluation Team
MAJCOMS	Major Commands
MASO	Munitions Accountable Systems Officer
MI	Mandatory Inspection
MIL-STD-129	Military Marking for Shipment and Storage
MK-12	Mark-12 Minuteman III Reentry Vehicle
MK-12A	Mark-12A Minuteman III Reentry Vehicle
MK-21	Mark-21 Minuteman III Reentry Vehicle
MMAC	Materiel Management Aggregation Code
MOA	Memorandum of Agreement
MSEP	Maintenance Standardization and Evaluation Program
MSDS	Material Safety Data Sheet
NCIS	Naval Criminal Investigative Service

NOCM	Nuclear Ordnance Commodity Material (prior to 1999) Nuclear Ordnance Controlled Material (after 1999)
NSA	National Security Agency
NSI	Nuclear Surety Inspection
NSN	National Stock Number
NWC	Nuclear Weapons Center
ONI	Office of Naval Intelligence
OI	Operating Instruction
OO-ALC	Ogden-Air Logistics Center
ORI	Operational Readiness Inspection
OSD	Office of the Secretary of Defense
PD	Project Directive
PEO	Program Executive Office
PEO/SP	Program Executive Office for Space
PMT	Periodic Maintenance Team
PT	Payload Transporter
QA	Quality Assurance
QAS	Quality Assurance Specialists
QC	Quality Control
QIMS	Quality Information Management System
RAMP	Reparable Asset Management Process
REPSHIP	Report of Shipment
RIMCS	Reparable Item Movement Control System
RSO	Radiation Safety Officer
SPI	Special Packaging Instruction
SA-ALC	San Antonio-Air Logistics Center
SAF/AQ	Assistant Secretary of the Air Force for Acquisition
SAV	Staff Assistance Visit
SBSS	Standard Base Supply System
SDR	Supply Discrepancy Report
SECDEF	Secretary of Defense
SECNAVINST	Secretary of the Navy Instruction
SIP	Self-Inspection Program
SSP	Service STAR (Select, Test, Assess and Report) Program
STAR	Select, Test, Assess and Report
SW	Space Wing
TAS	Tool Accountability System
TCTO	Time Compliance Technical Order
TMO	Transportation Management Office
TO	Technical Order

UCI	Unit Compliance Inspection
USASAC	U.S. Army Security Assistance Command
USAF	United States Air Force
USAL	Unit Spares Authorization Listing
U.S.C	United States Code
USI	Unit Self Inspection
USSPACECOM	United States Space Command
USSTRATCOM	United States Strategic Command
WIP	Work-In-Process
WSA	Weapons Storage Area