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FORCE STRUCTURE ANALYSIS FOR THE NUCLEAR POSTURE REVIEW

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Date: 19 JUNE 2002

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TOPICS



- Background
- Tools
- Operationally Deployed Weapons
- Past Analysis
 - Strategy Analysis
 - Knee of the Curve
 - Force Composition
- Current Analysis

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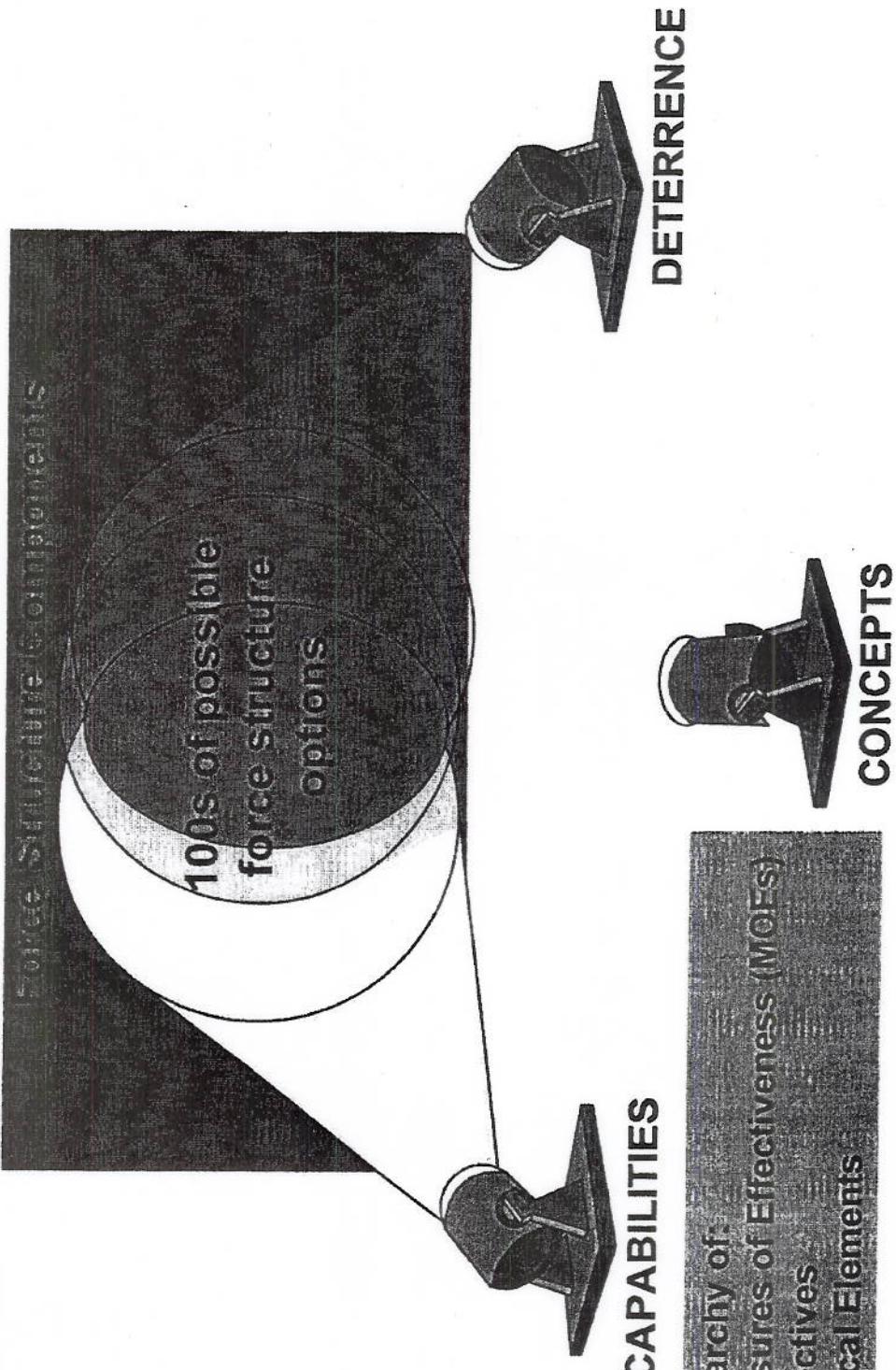
WAM

- Large scale linear program model used to assign strategic weapons to targets
- Developed by USSTRATCOM as a replacement for the Arsenal Exchange Model
- Windows based program that combines COTS, GOTs and locally developed software
 - MPL, Cplex, MS Access, Map Objects, STAMP, PDCalc, Degen, Stratgen, Poolgen, etc.
- Model Inputs
 - Target base
 - Force structure
 - Planning factors

Complete Brief in WG1 - 0830 Thursday

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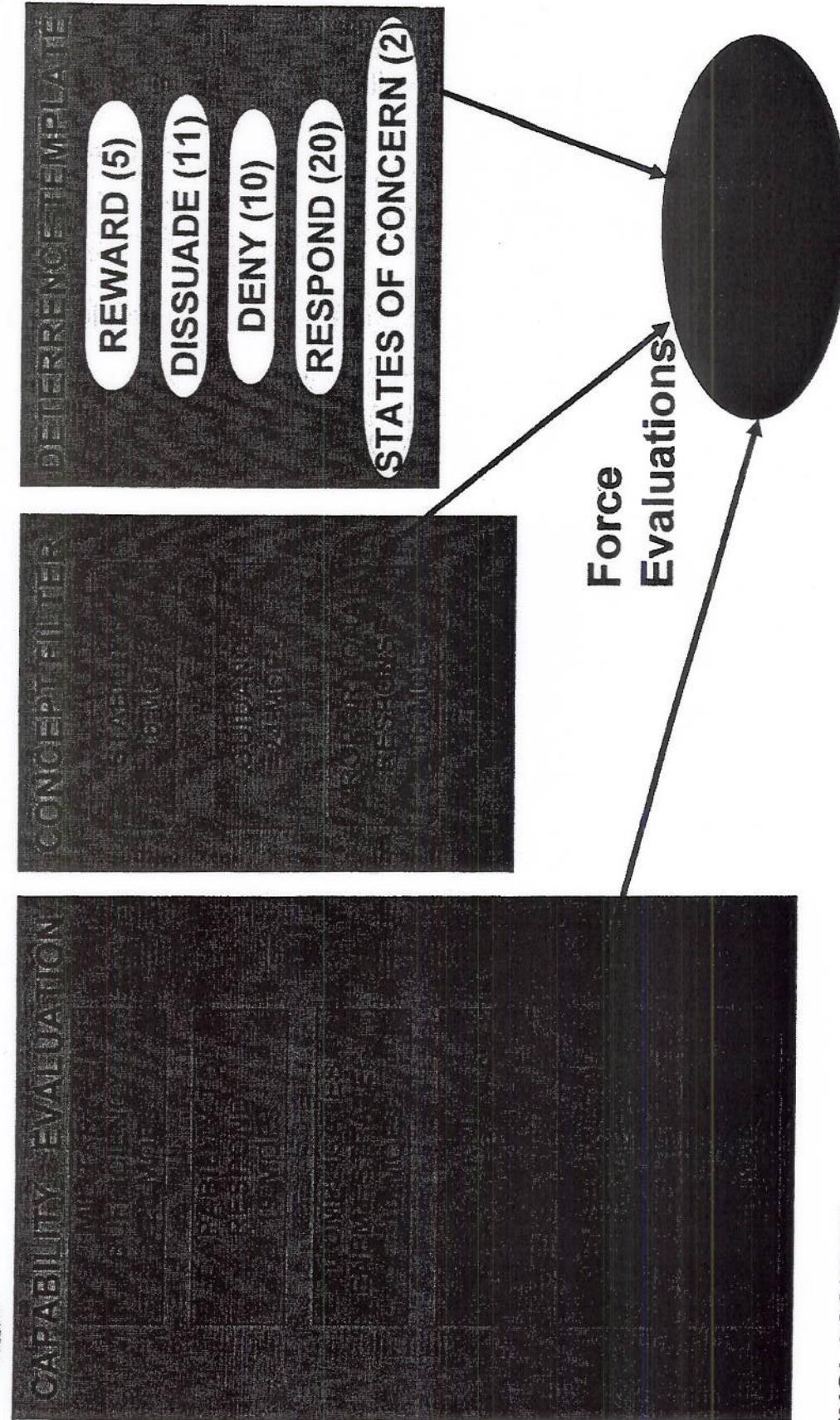
CONCEPTUAL MODEL



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CBFS DETAILED MODEL



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NEW COUNTING LOGIC OPERATIONALLY DEPLOYED STRATEGIC NUCLEAR WARHEADS

- Count weapons that are committed for planning and execution
 - Weapons deployed on ICBMs
 - Weapons loaded on available (non-overhaul) SSBNs
 - Bomber weapons in bomber base WSA (to exclude spares)
 - Counting of weapons is not based on platforms
 - i.e., count number of cruise missiles not an attribution per plane multiplied by the number of planes
 - Weapon/platforms not counted
 - SSBNs in overhaul
 - Bombers in Depot
 - SSGNs
 - Does not equate to stockpile size
 - Logistics spares, reliability replacements, augmentation (hedge), etc. are not counted

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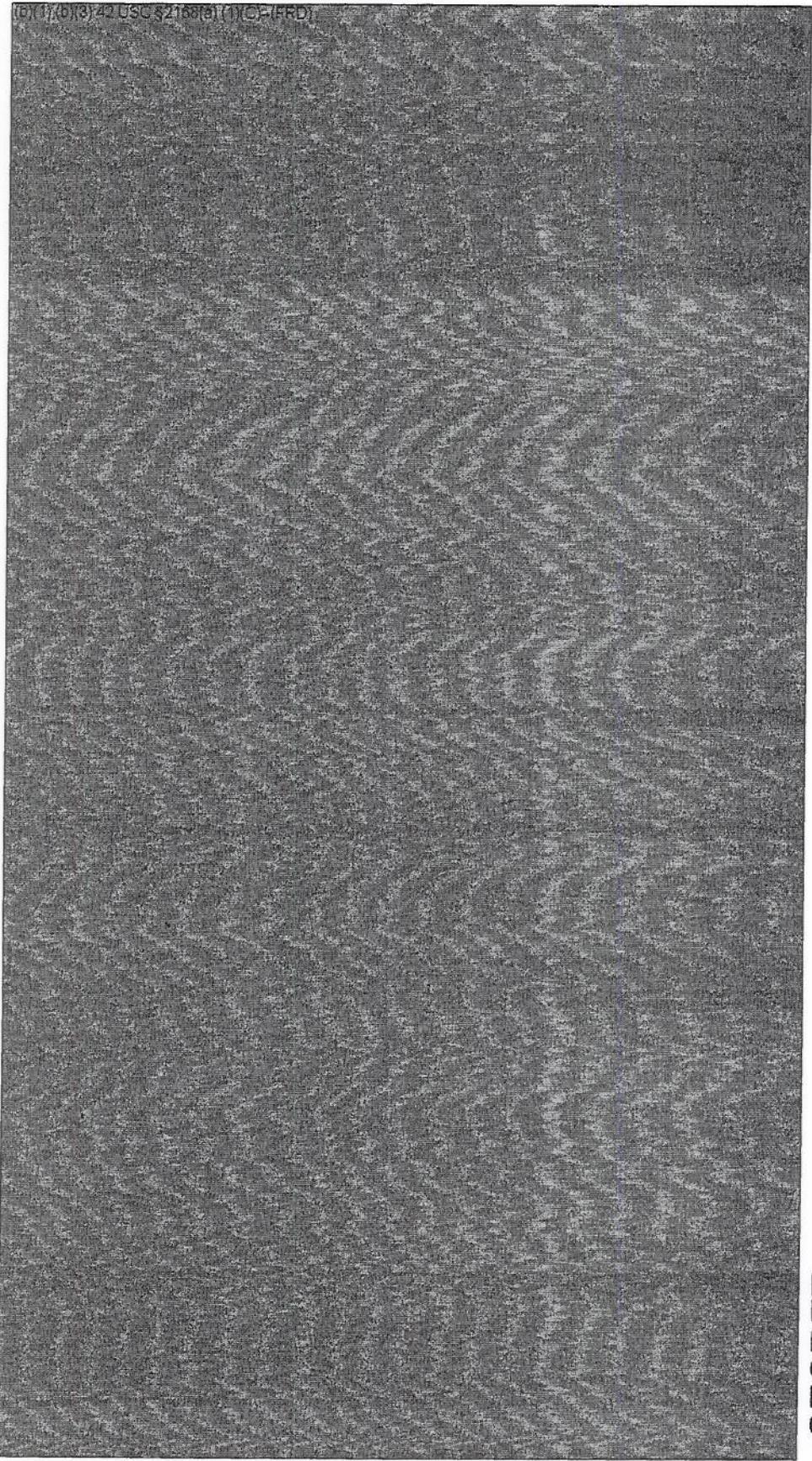


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START I ACCOUNTABLE WARHEADS

National Force Option

(b) (1)(b)(3) 42 USC §2168(a)(1)(C)-(FBD)

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TOPICS



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ANALYSIS SUMMARY

- Three distinct phase
- NPR 1B - Immediate Reductions
- [REDACTED]
- NPR 1A - Evaluate Alternative Strategies
 - Vary force size and assess ability to meet proposed alternative strategy's targeting objectives
 - One strategy selected
- Detailed Strategy analysis
 - Examine force composition and size for selected strategy
- MOEs
 - Available Weapons, Mean Installation Damage Expectancy (MIDE), Weapons to Installation Ratio
 - Fatalities, Stability, etc.

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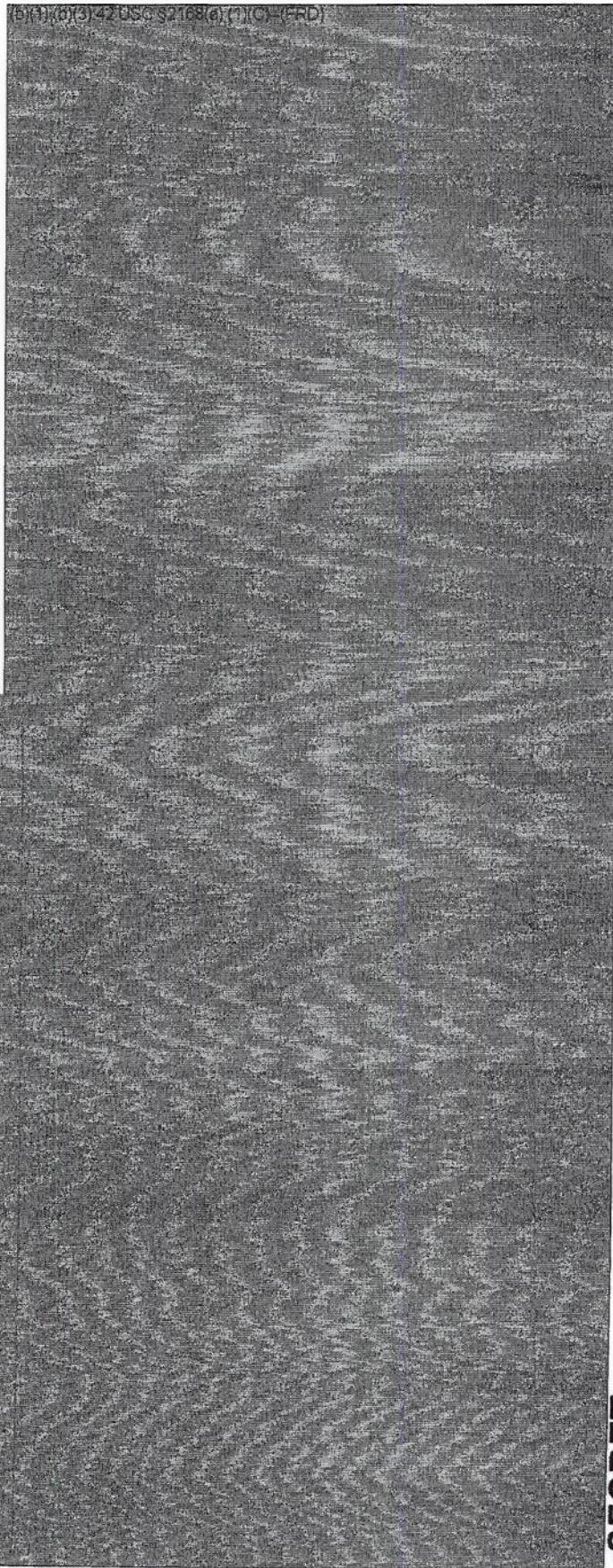
KNEE IN THE CURVE



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Assumptions:

- Historical weapon distribution
- Representative TRIADS



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FORCE STRUCTURE COMPOSITION

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- ICBM: [REDACTED]
- B-2: [REDACTED]
(b)(1), (b)(3)(A)
USC
§2168
(a)(1)
(C)-
(FRD)
- B-52: [REDACTED]
(b)(1), (b)(3)(A)
USC
§2168
(a)(1)
(C)-
(FRD)
- SSBN: [REDACTED]

[REDACTED]
(b)(1), (b)(3)(A)
USC §2168(a)(1)
(C)-
(FRD)

Reasonable Bound(s) - Not Preferred Options

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TOPICS



- Background
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WORKING DEFINITIONS



- Strategic Nuclear Warheads - comprised of:
 - Operationally Deployed Strategic Nuclear Warheads (ODSNW)
Strategic nuclear weapons that are on operational ballistic missiles and weapons on bombers or in bomber weapon storage areas (except for logistic spares)
 - Reserve Strategic Nuclear Warheads
Any strategic nuclear warhead that is not operationally deployed
- Comprised of:
 - Reliability Replacement: warheads retained to replace other warheads that experience a failure
 - Logistic Operations: warheads required to support QART and LLC (so that ODSNW level is not decreased)
 - Augmentation: warheads retained to provide options for unforeseen events
- External Factors
 - Issues that impact warhead requirements (production capability, transparency, etc.)

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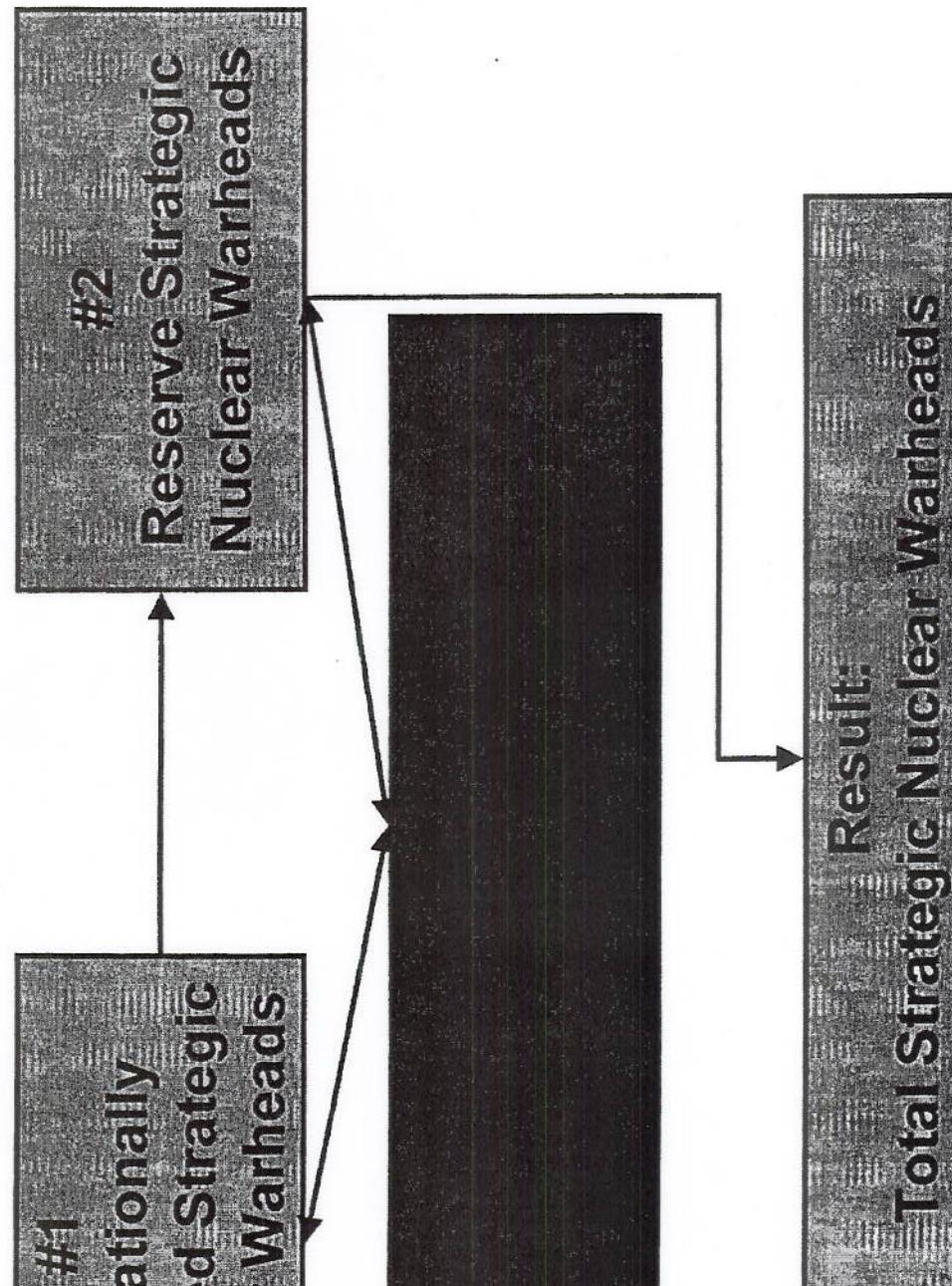
CURRENT ANALYSIS PURPOSE



- To develop a capabilities & scenario based methodology and determine:
 - Composition for the Operation Deployed Strategic Nuclear Warheads
 - Size and Composition for the Reserve Strategic Nuclear Warheads

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CONCEPTUAL FRAMEWORK

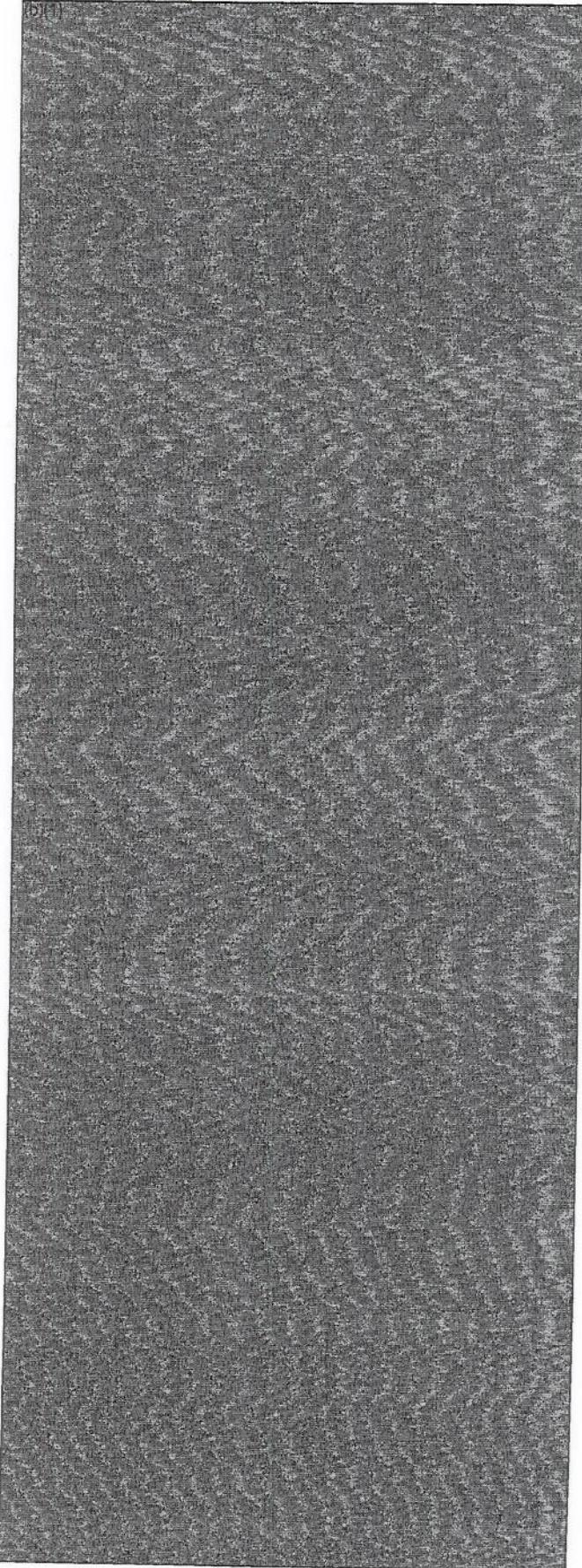


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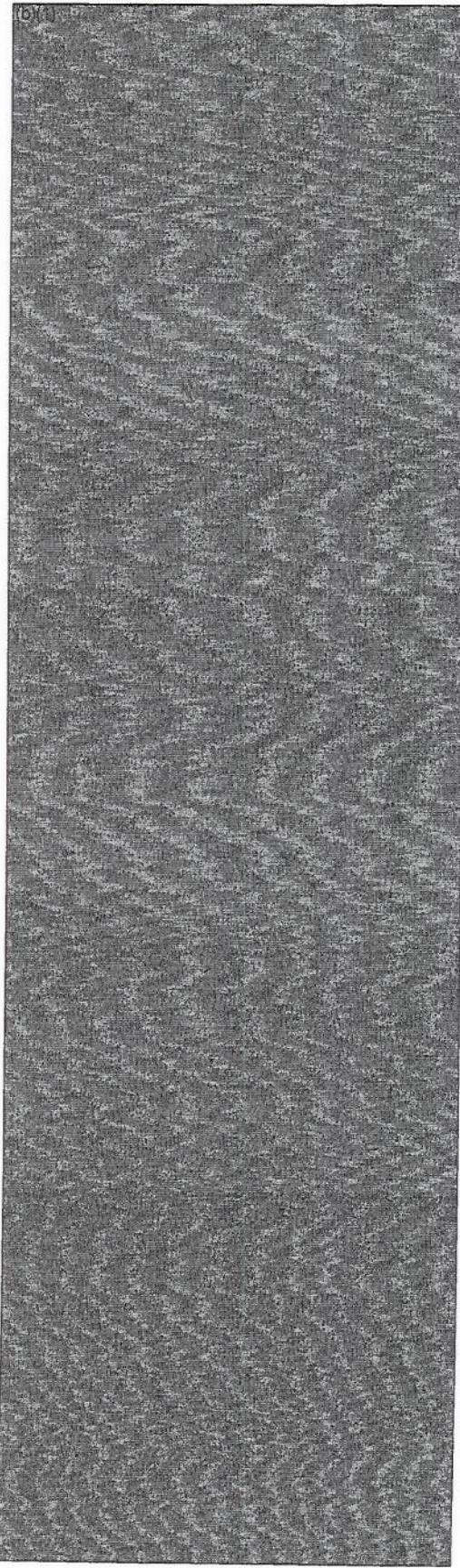
**OPERATIONALLY DEPLOYED STRATEGIC
NUCLEAR WARHEADS
--- DESIRED CAPABILITIES (INITIAL LIST) ---**



**Wide Breath of Capabilities Required for an
Uncertain Future**

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RESERVE STRATEGIC NUCLEAR -~~SECRET~~
WARHEADS
--- DESIRED CAPABILITIES (INITIAL LIST) ---



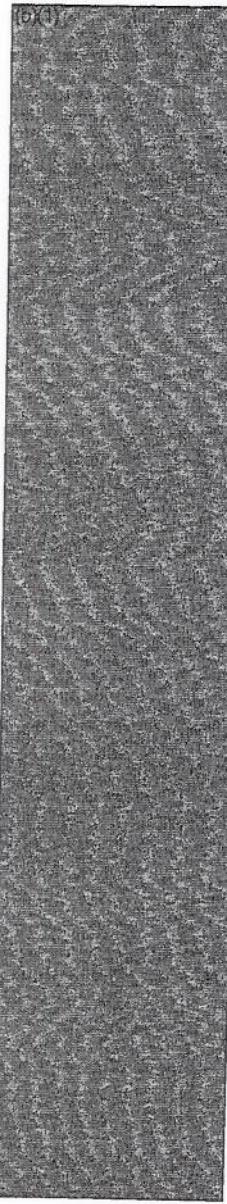
**Wide Breath of Capabilities Required for an
Uncertain Future**

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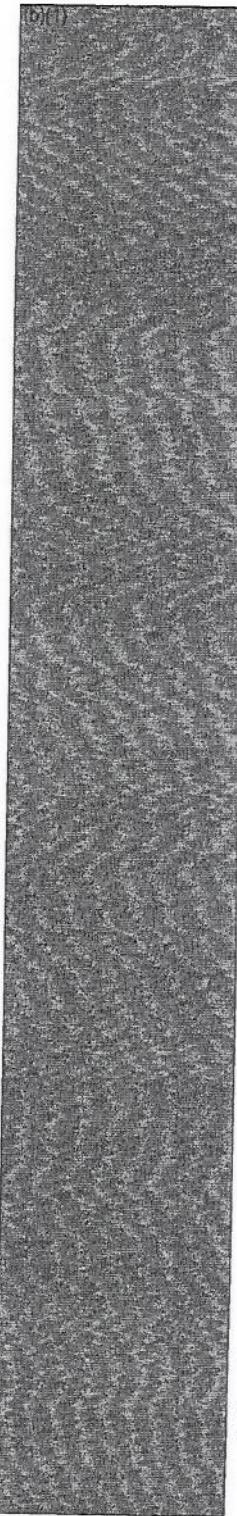


**RESERVE STRATEGIC NUCLEAR
WARHEADS**
--- SCENARIOS (INITIAL LIST) ---

- “Mechanical” scenarios



- Support logistic operations cycle
- “Threat” scenarios



- Unforeseen technology breakthrough

-REF

-REF



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**RESERVE STRATEGIC NUCLEAR
WARHEADS**

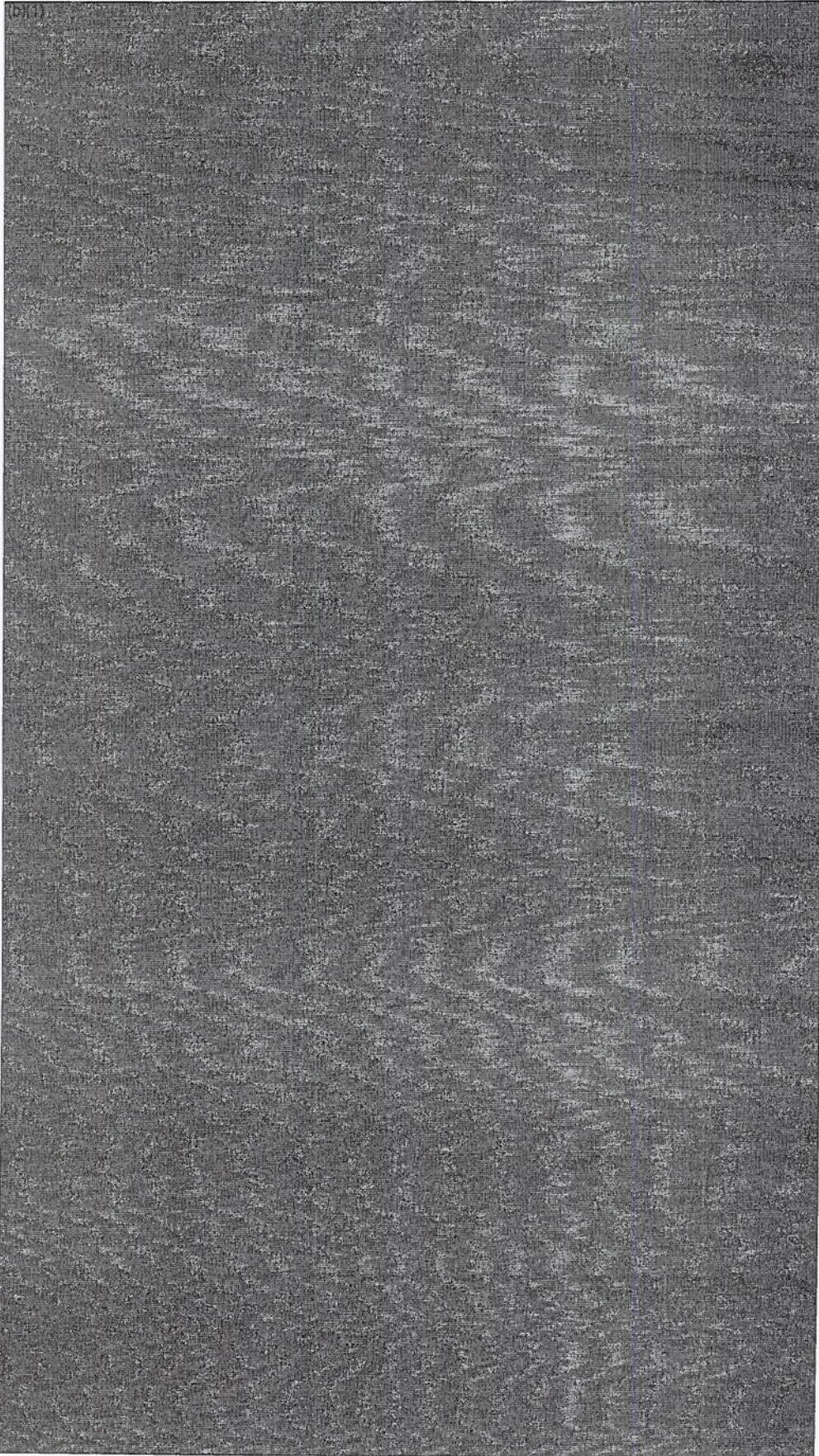
... INITIAL SCENARIO SIZING (2012) ...

(b) (1), (b) (3)(c) (4) USC § 2108(a) (1)(C) (F)(D)

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**RESERVE STRATEGIC NUCLEAR
WARHEADS**
... SCENARIO POSSIBILITIES ...



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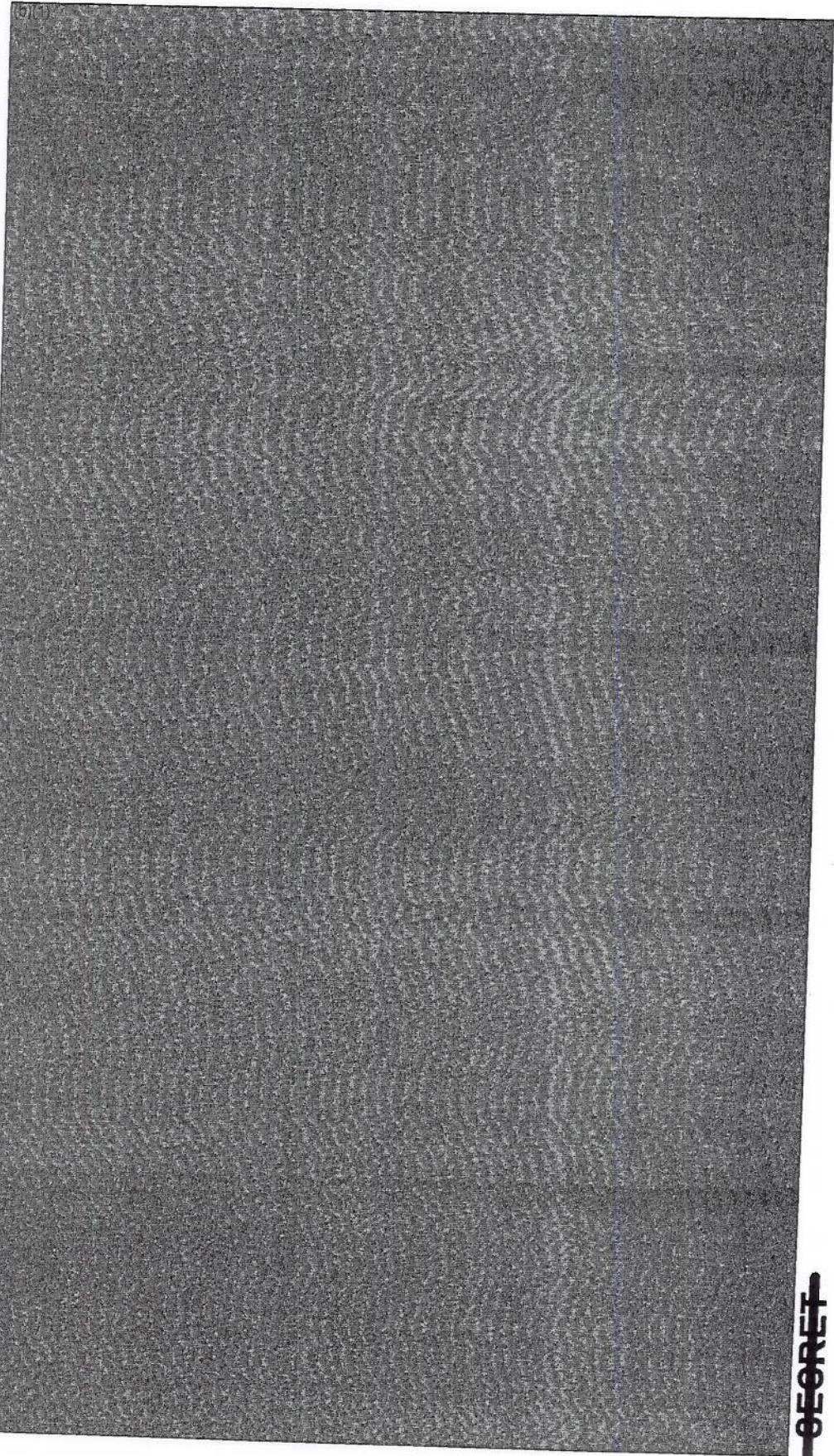
EXTERNAL FACTORS (INITIAL LIST)

- Uploading timelines
- Weapon storage implications
- NNSA infrastructure (Manufacturing capabilities, etc)
- Stockpile configuration (Active & Inactive)
- Treaties
- \$

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TRADE SPACE (INITIAL LIST)

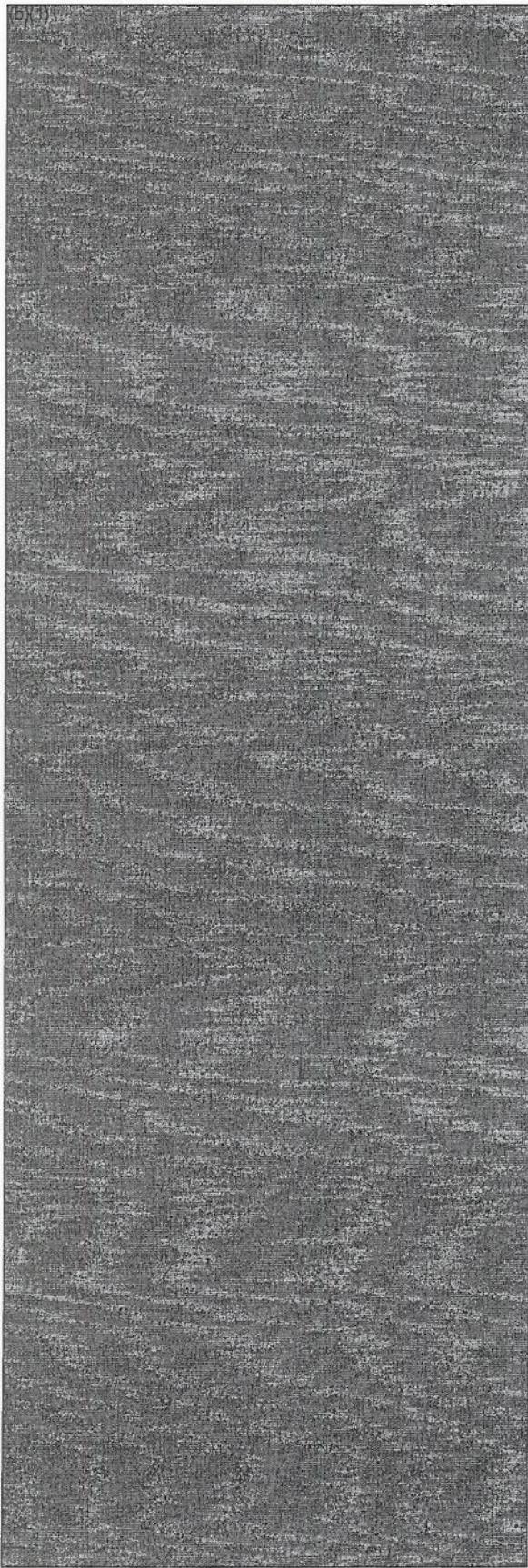


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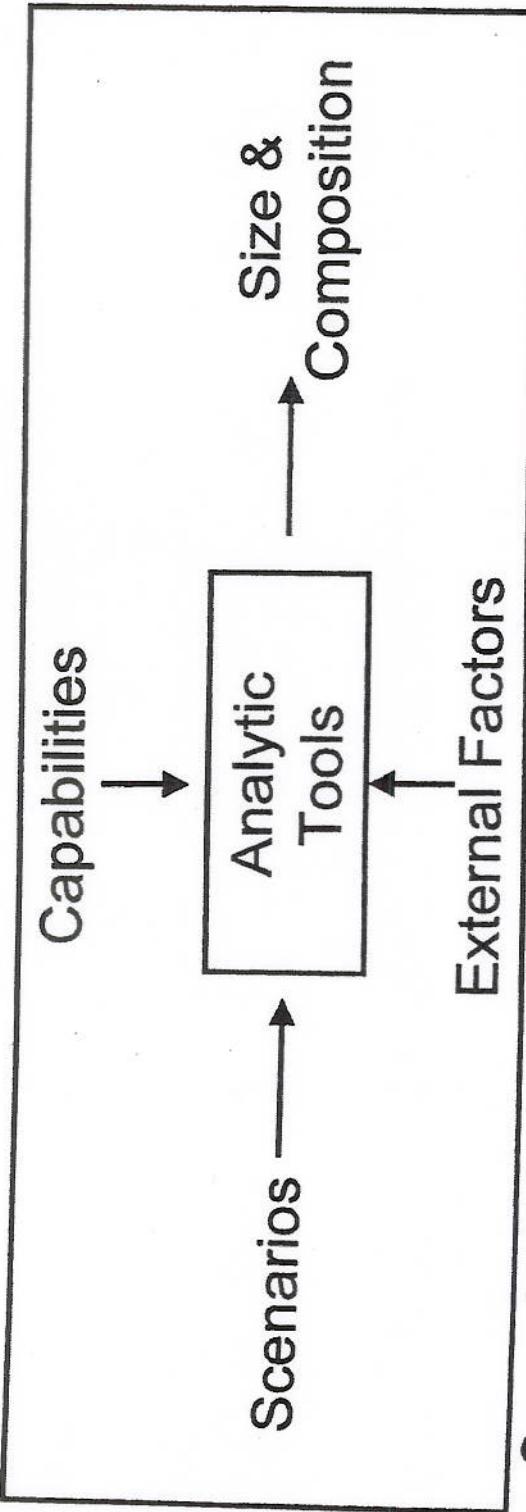
**TRADE SPACE
(INITIAL LIST)**

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Current assumption
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ANALYTIC APPROACH



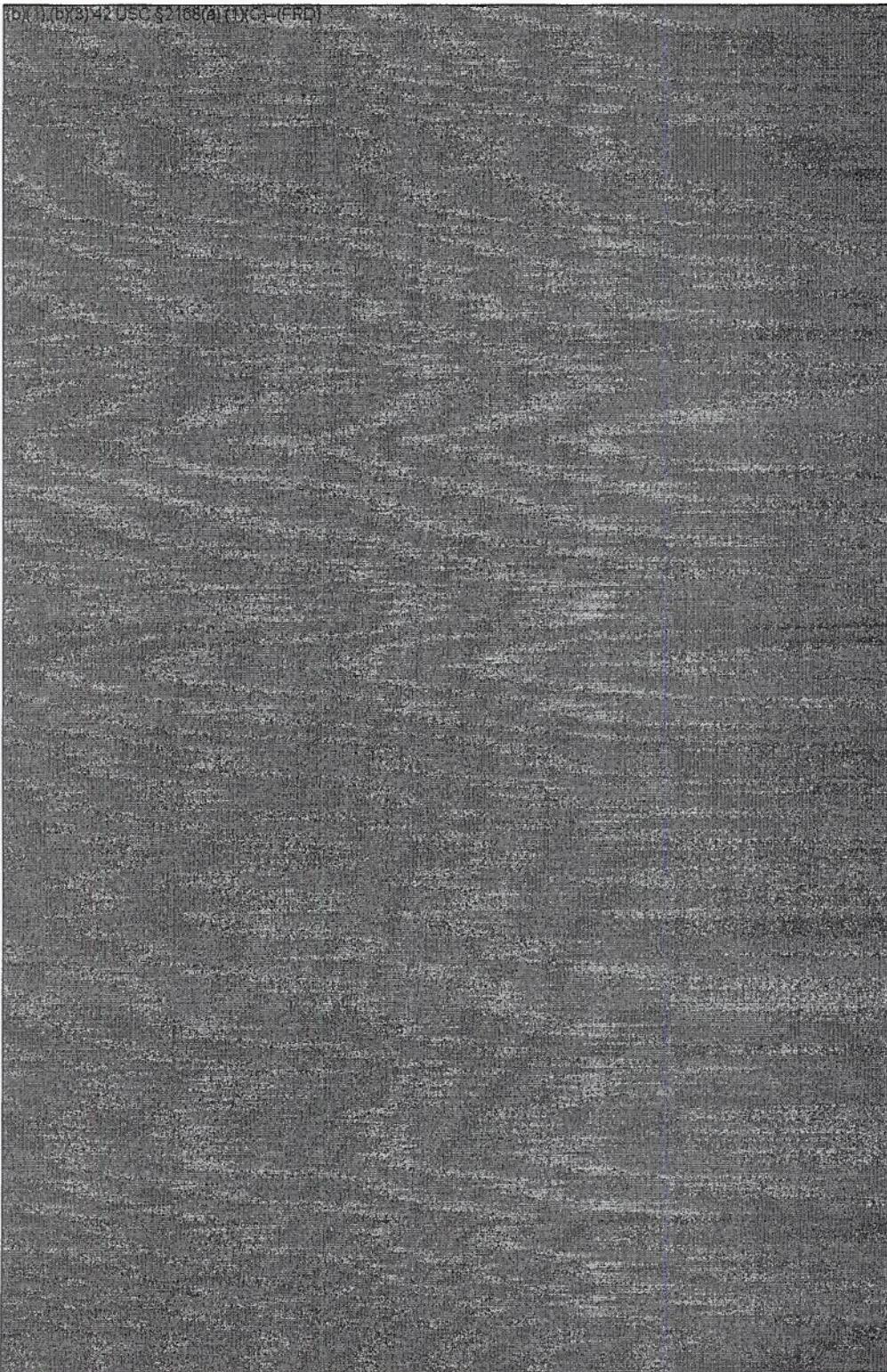
- Scenarios
 - Operationally Deployed Strategic Nuclear warheads
 - Threat Based
 - Reserve Strategic Nuclear warheads
 - Threat Based & Mechanical Based
 - Analytic tools
 - WAM, CBFS Model, Stockpile sizing tool, etc.

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ANALYTIC APPROACH - EXAMPLE RESERVE STRATEGIC NUCLEAR WARHEADS



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STRATEGIC NUCLEAR FORCES 2012
“INITIAL INSIGHT”



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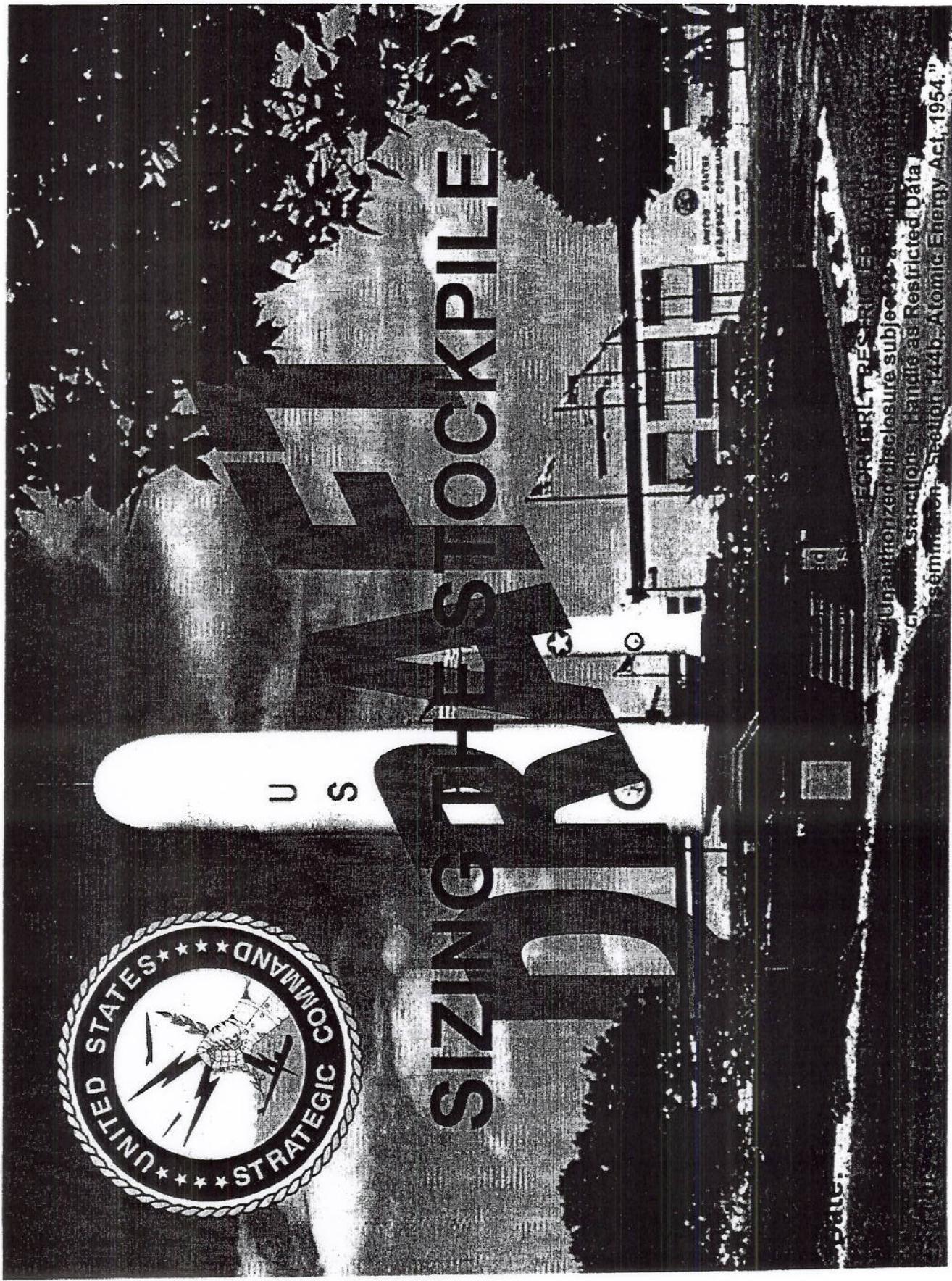
SUMMARY



- NPR analysis conducted in three phases
 - Results reported to OSD & JS
 - Provided insight into force structure size and composition
- Current Analysis
 - Provide information for sizing the strategic stockpile
 - Analysis near completion -- internal approval process underway

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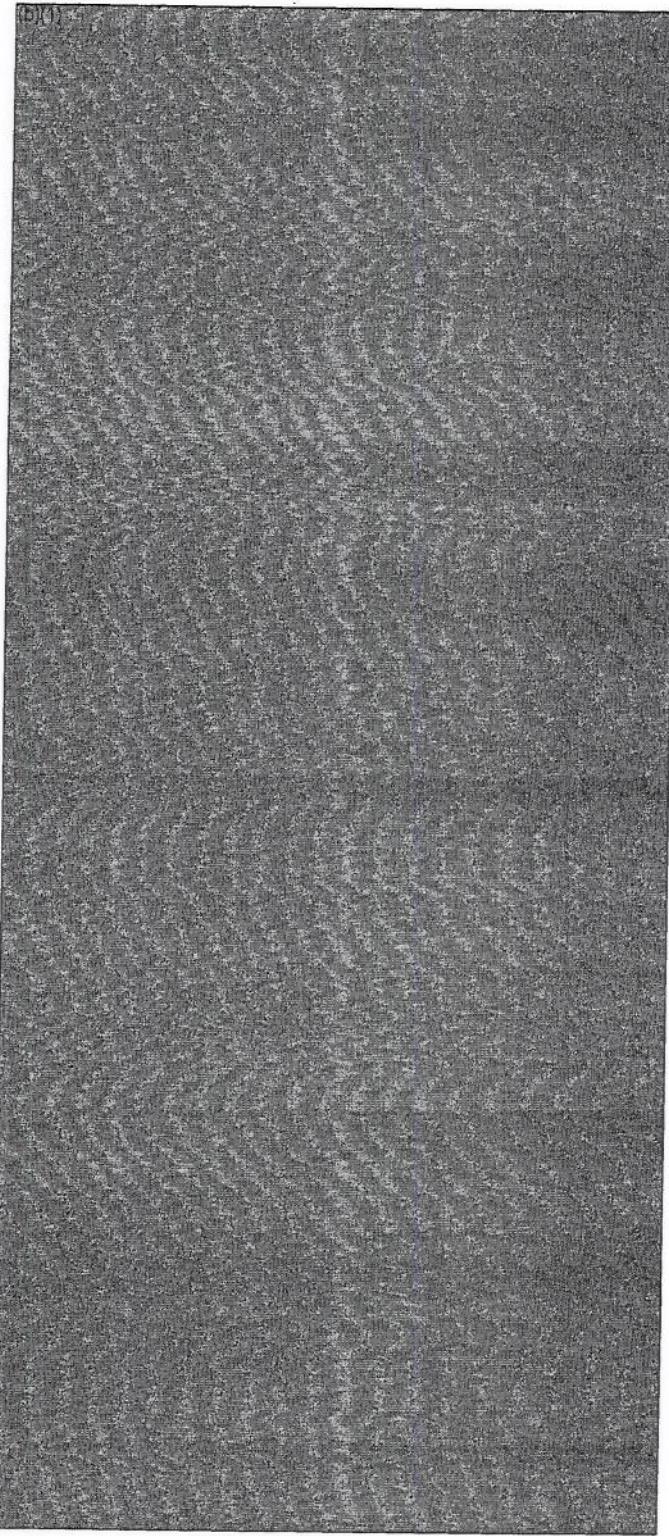
PURPOSE

- **Size the NPR Strategic stockpiles for 2007 and 2012**
- **Add the Non-strategic stockpile for completeness**
- **Compare the NWSM/RPD and NPR stockpiles**
- **Describe decisions to be made that affect the size of the Strategic stockpile**



SIZING THE NPR STOCKPILE ASSUMPTIONS

- Force Structure
 - NPR operationally deployed and responsive forces
- Policy and Requirements



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SIZING THE NPR STRATEGIC STOCKPILE

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

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SIZING THE NPR STRATEGIC STOCKPILE



(b)(1), (b)(3), 42 USC § 2168(e) (1)(C)-(F)(O)

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SIZING THE NPR STRATEGIC STOCKPILE

(b) (1) (C) (3) 42 USC 52168(a) (1) (C) - (FRC)

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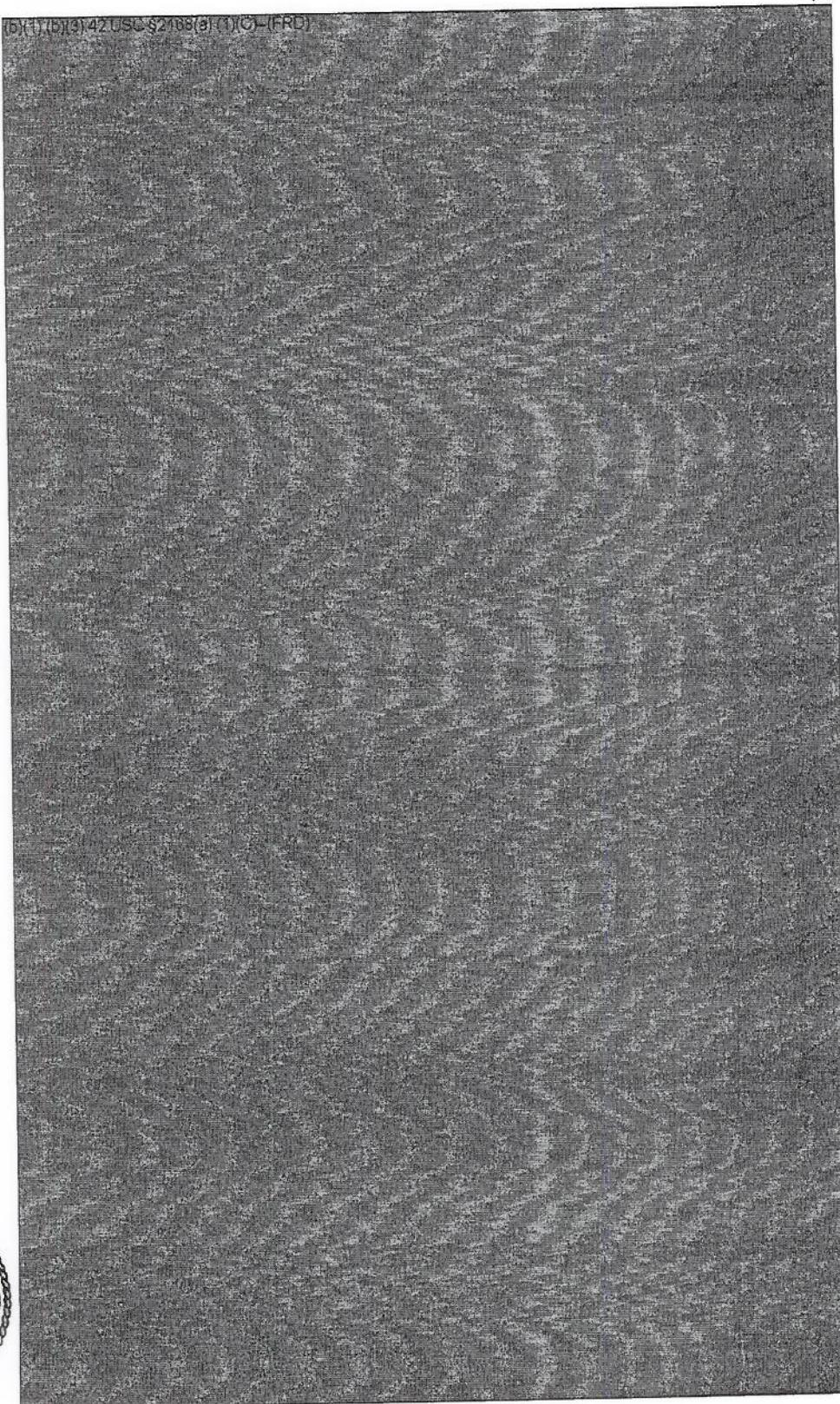
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SIZING THE NPR STRATEGIC STOCKPILE



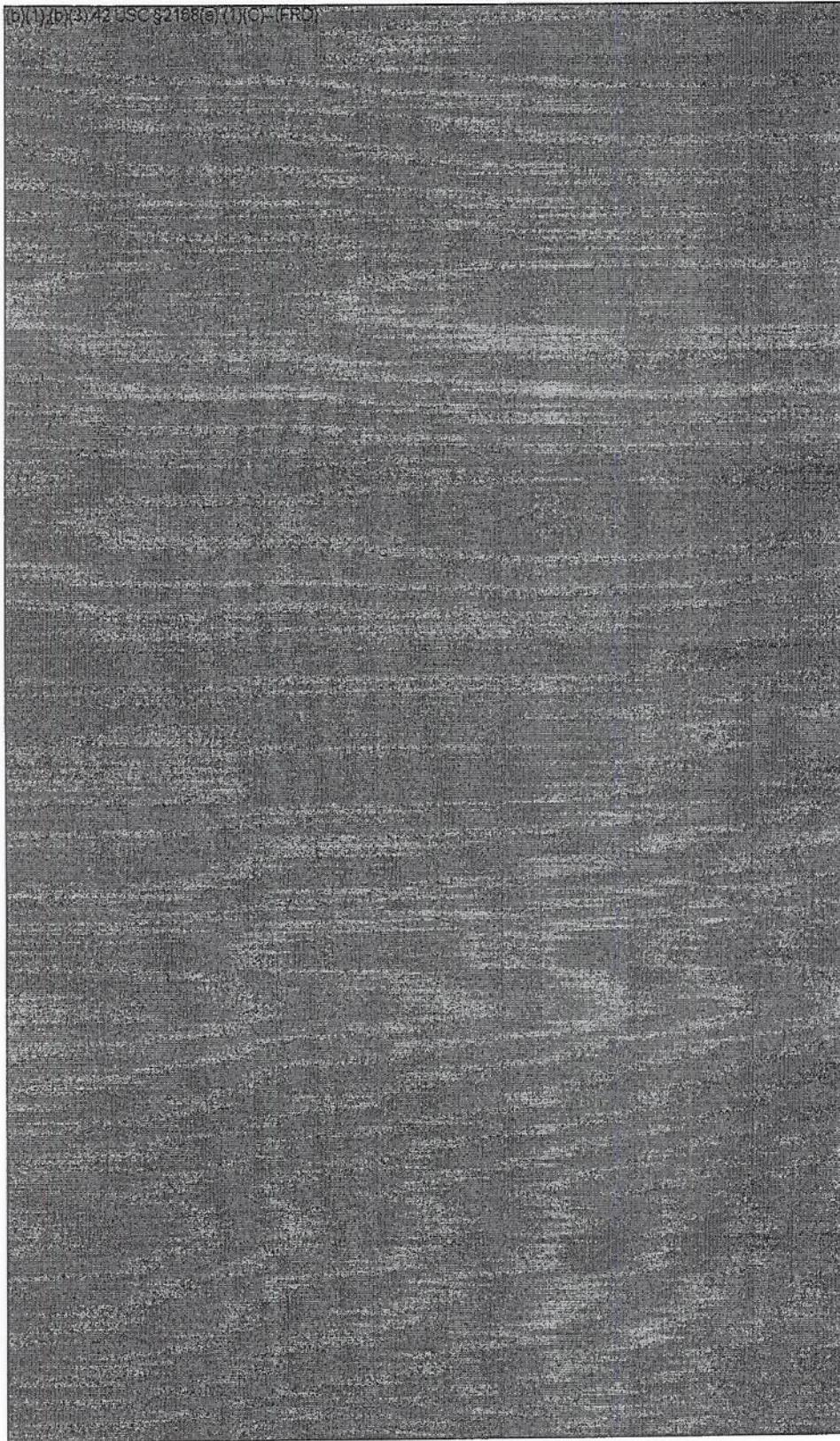
(b)(1) (b)(3) (42 USC § 2108(a)(1)(C)) (FBD)



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SIZING THE NPR STRATEGIC STOCKPILE



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SIZING THE NPR STRATEGIC STOCKPILE



(b) (1) (b) (3) 42 USC §2168(a)(1)(C)- (FBD)



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THE TOTAL NPR STRATEGIC STOCKPILE

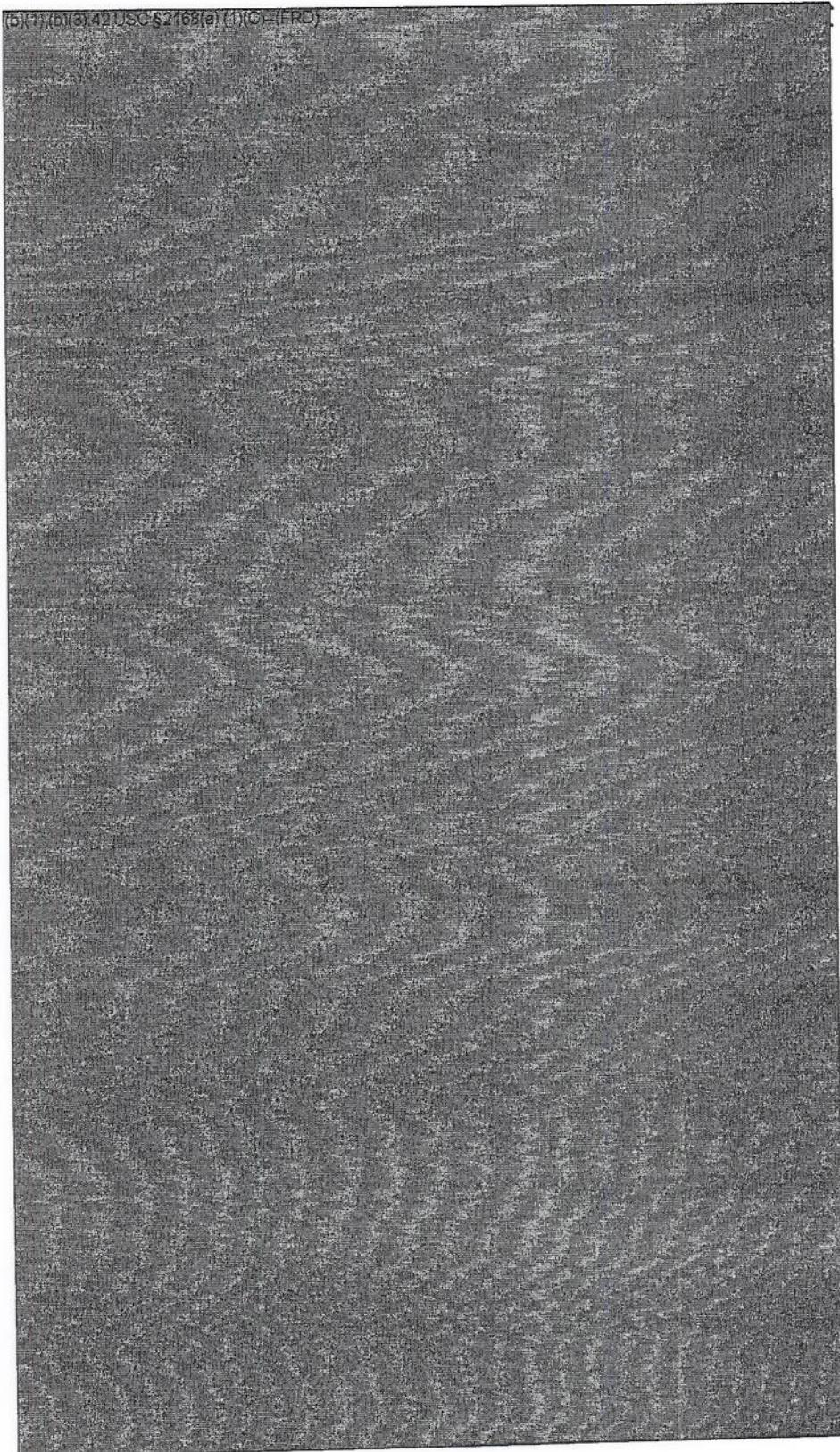


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NON-STRATEGIC STOCKPILE

(b)(1)(b)(3)(A) USC § 2168(a)(1)(G)-(FRD)



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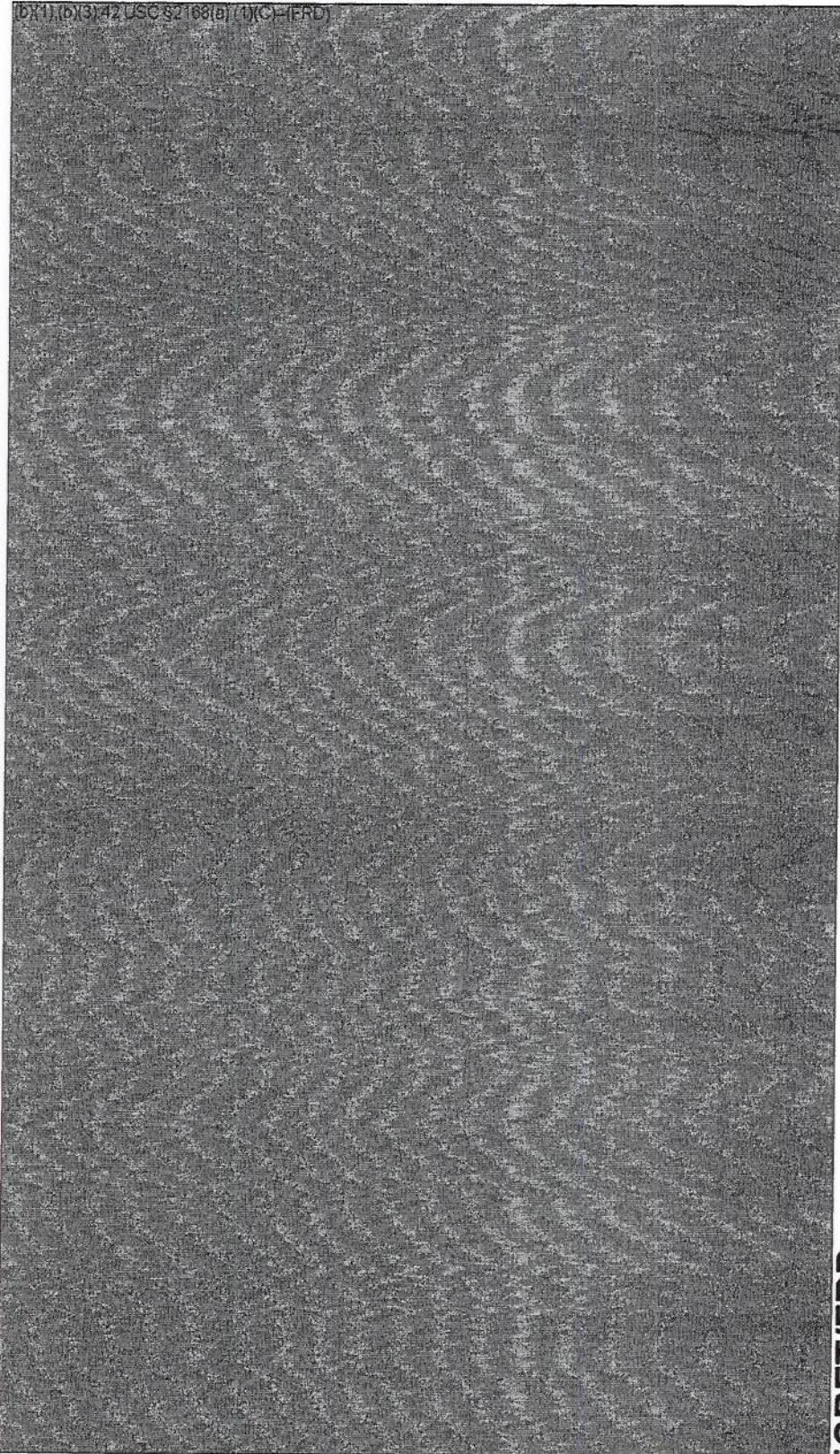




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THE TOTAL NPR STOCKPILE STRATEGIC/NON-STRATEGIC

(b)(1), (b)(3) (d) 42 USC § 2168(e) / (b)(C) - (FRD)



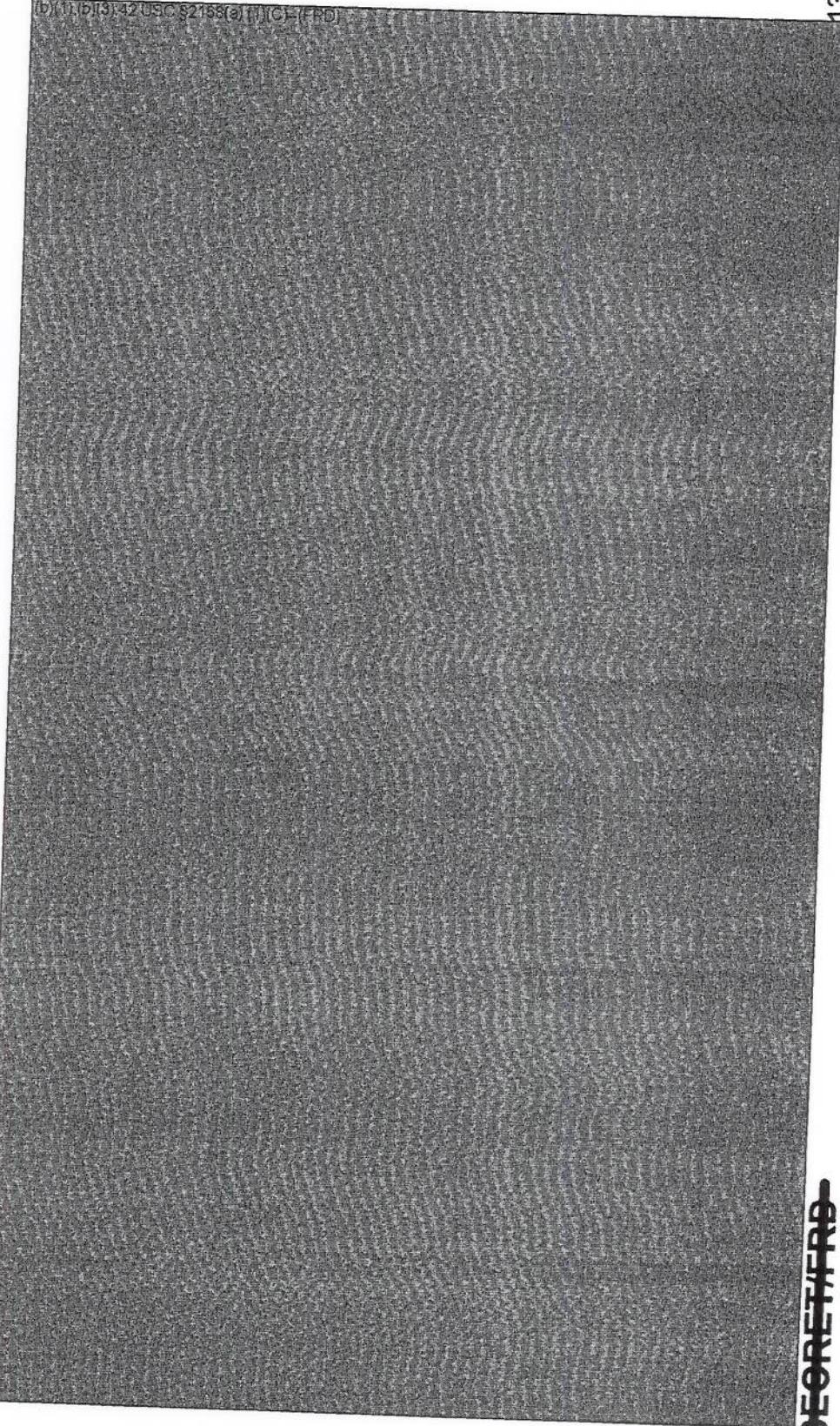
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-REF ID: A20240

COMPARING NWSM/RPD AND NPR STOCKPILES

(b) (1), (b) (3), (42 USC § 2168 (e)(1)) (C) (1) (F)(D)



-REF ID: A20240



DECISIONS TO BE MADE

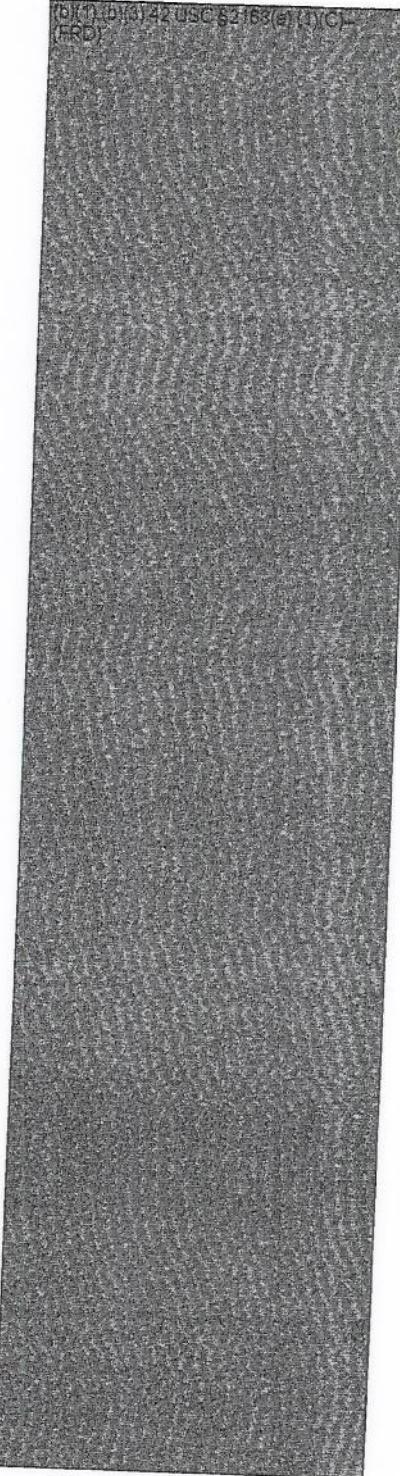
- Augmentation force
 - Composition
 - Readiness
- Storage configuration
- Dismantlements
- Reliability Replacements

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RESPONSIVE FORCE COMPOSITION

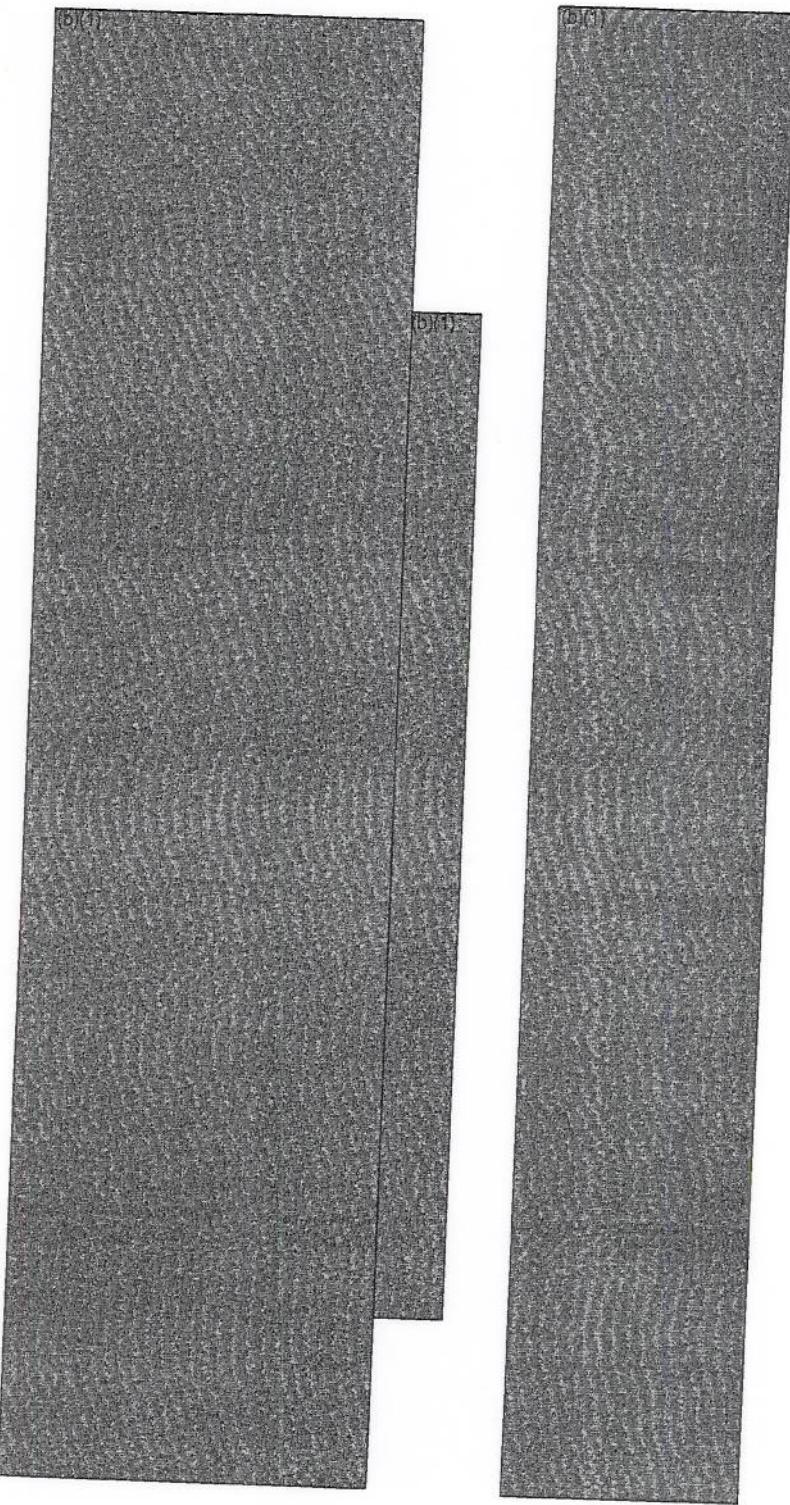
- What is the composition and load out of the augmentation force?



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RESPONSIVE FORCE READINESS



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STORAGE CONFIGURATION

(Transparency Implications)

- Cruise Missiles

- Stored with warheads removed

- ICBM and SLBM Weapons

(b) (1) (D) (2) (4) (2) (C) (3) (1) (H) (F) (D)

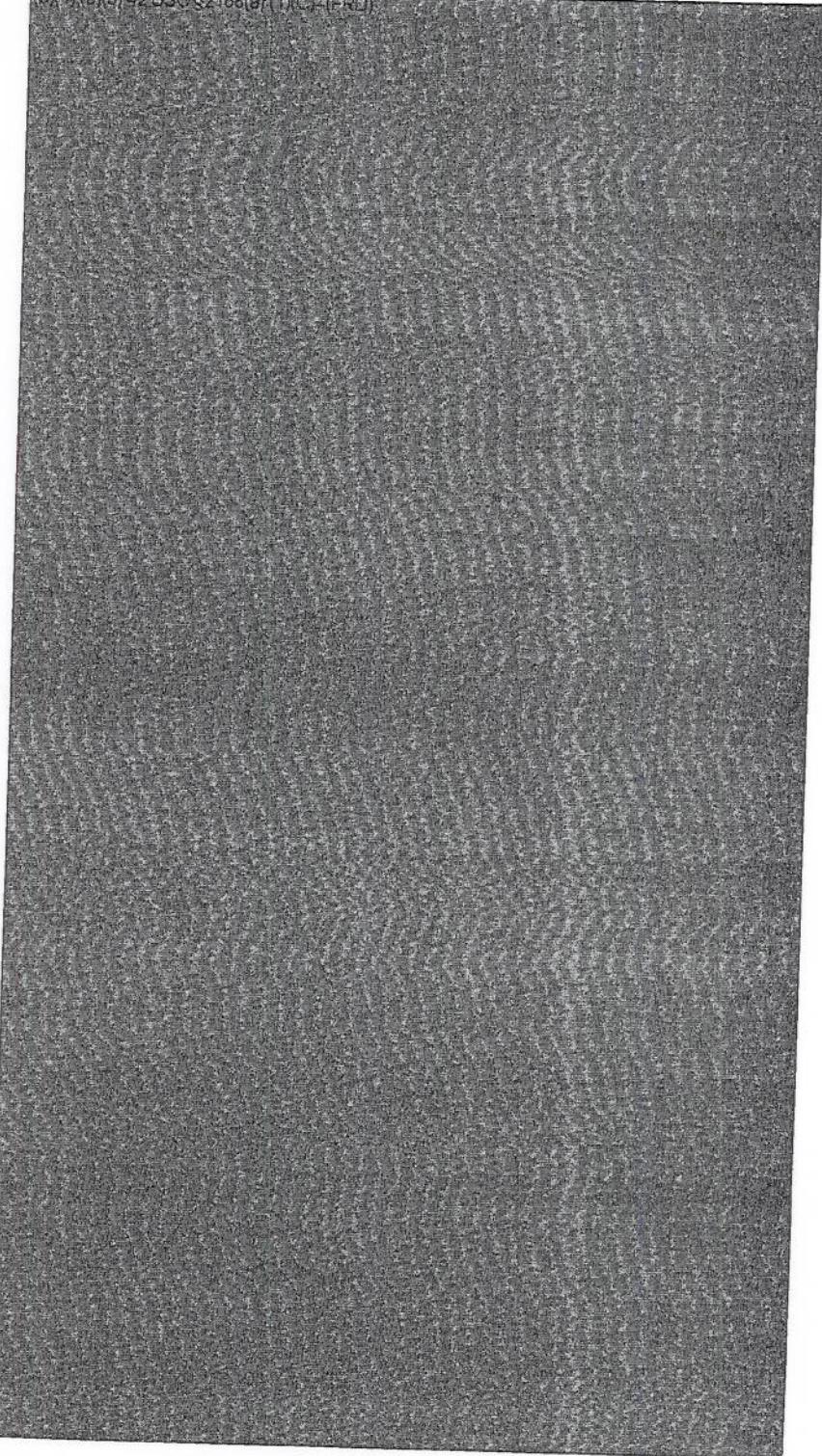
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DISMANTLEMENTS

-CONFIDENTIAL//FBD-

(b)(1), (b)(3), 42 USC § 2168(a)(1)(C)-(F)(D)



-CONFIDENTIAL//FBD-

RELIABILITY REPLACEMENTS



- Should augmentation weapons be also counted as reliability replacements, if so what would be the affect to the responsive force load outs?
- Should W76/W80-1 unrefurbished weapons be used as Reliability Replacements for refurbished weapons?
- Should W76/W80-1 block upgrade weapons be used as reliability replacements for a different block?
- Will we need Reliability Replacements if there is a robust production capability?

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SUMMARY

(b) [REDACTED]

[REDACTED]

(b) [REDACTED]

(b) [REDACTED]

