Image Cover Sheet

CLASSIFICATION	SYSTEM NUMBER
UNCLASSIFIED	149578

TITLE

THE STRUCTURE AND FUTURE DIRECTION OF THE CANADIAN CB PROTECTIVE EQUIPMENT PROGRAM AT DRES

System Number:

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Annex N

19 pages in total

PHYSICAL PROTECTION SECTION

THE STRUCTURE AND FUTURE DIRECTION OF THE CANADIAN CB PROTECTIVE EQUIPMENT PROGRAM AT DRES.

DR. JOHN BOVENKAMP

HEAD/PHYSICAL PROTECTION SECTION
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD

03 MAY 94

PHYSICAL PROTECTION SECTION

DR. J. BOVENKAMP H/PPS

SCY POSITION

RESPIRATORY PROTECTION

ADSORBENTS/AGENT PERFORMANCE/COLL.PROT.

Empty	DS
Dr. R. Clewley	DS
Dr. S. Liang	DS
Mr. B. Lacroix	EG
Mr. R. Poirier	EG

ENGINEERING RESEARCH

Empty	DS
Dr. J. McAndless	DS
Mr. C. Adie	EG
Empty	EG

MATERIALS RESEARCH

POLYMER RESEARCH

Empty	DS
Dr. A. Burczyk	DS
Mr. J. Clark	EG
Mr. G. Soucey	EG

MATERIALS RESEARCH

Empty	DS
Ms. J. Tremblay-Lutter	DS
Mr. B. Delong	EG
Empty	EG

DECONTAMINATION RESEARCH

Dr. G. Purdon	DS
Mr. C. Chenier	EG

DEVELOPMENT PROGRAM

RECENTLY COMPLETED

DNBCC 16	DEVELOPMENT OF NEW NBC COMBAT GLASSES

CURRENT

DNBCC 17	DEVELOPMENT OF PPC CARBON FOR PROTECTION AGAINST PENETRANTS
DCGEM 102	DEVELOPMENT OF THE HIGH PERFORMANCE PLASTIC C7 CANISTER
DNBCC 23	INTERIM CB GARMENT FOR HOT ENVIRONMENTS
DCGEM 105	NEXT GENERATION PROTECTIVE GLOVES
DCGEM 104	NEW CB PROTECTIVE LAYER CONCEPTS

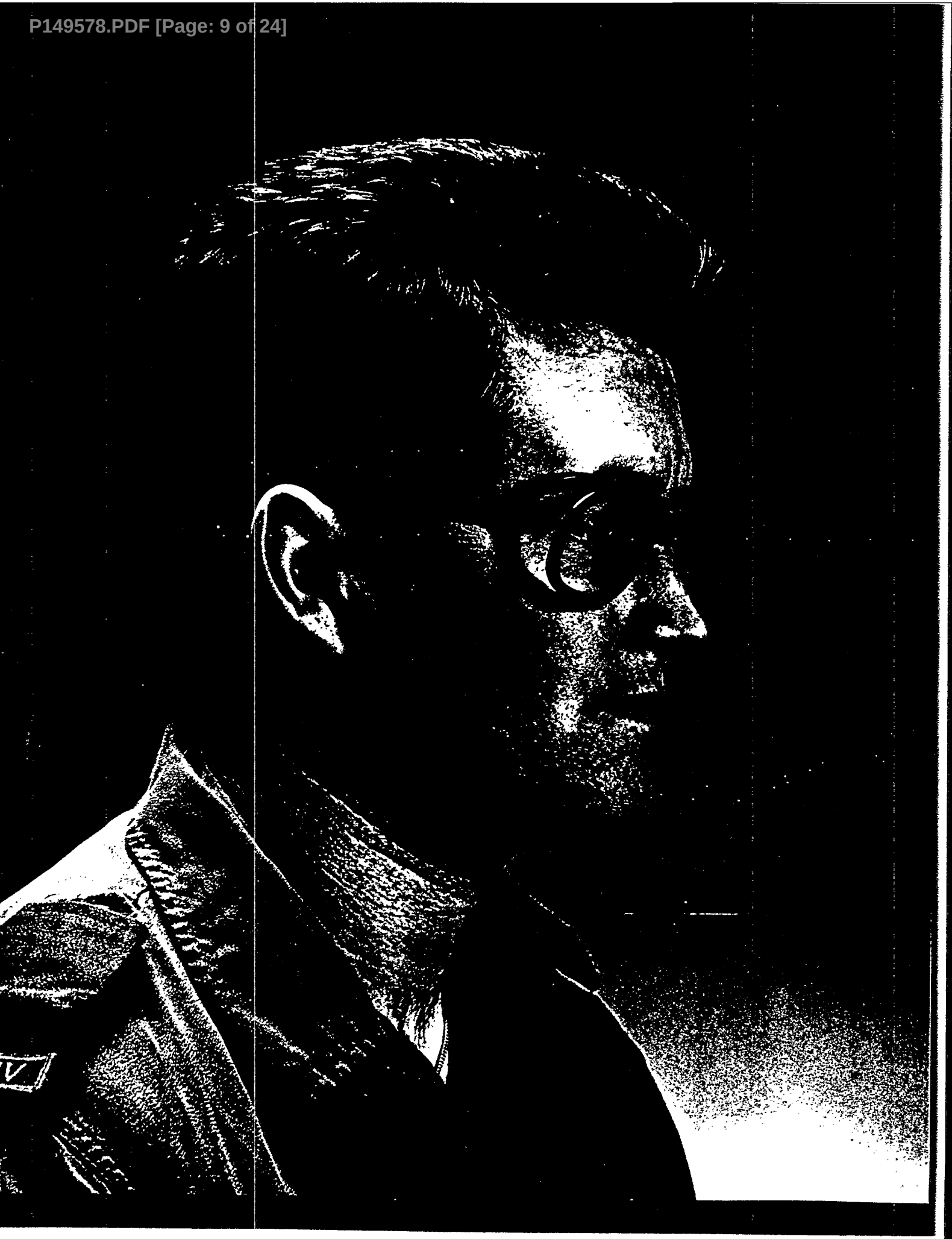
PENDING

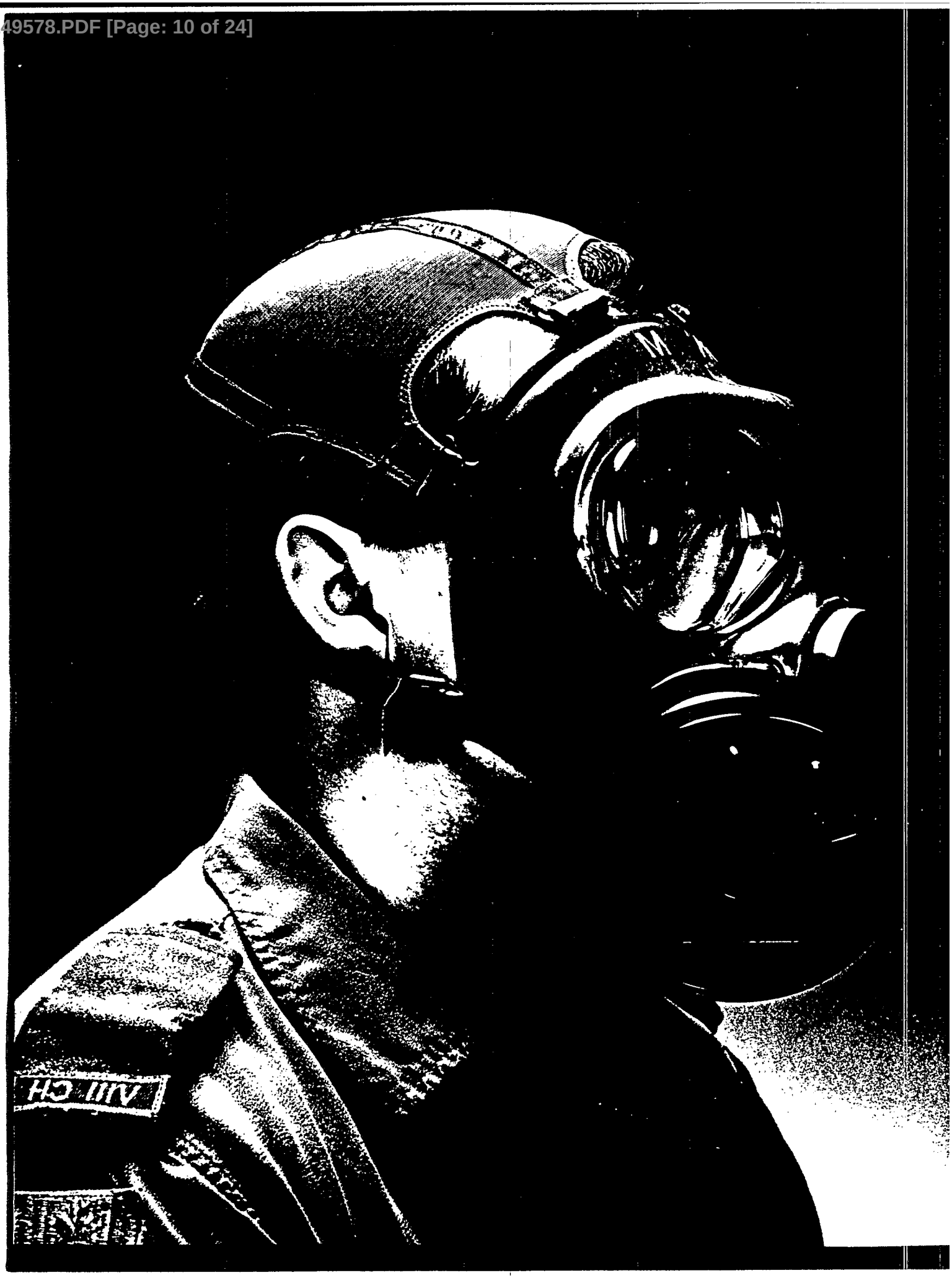
DACME	DEVELOPMENT OF IMPROVED ADSORBENTS AND CANISTER DESIGNS

PHYSICAL PROTECTION SECTION

CURRENT PRODUCTS OF RESEARCH ABOUT TO ENTER SERVICE

- THE NEW HIGH PERFORMANCE C7 PLASTIC CANISTER (FULL PRODUCTION SLATED FOR SPRING 94)
- NEW HIGHLY PROTECTIVE CANADIAN PPC CARBON WILL GO INTO SERVICE WITH THE NEW C7 CANISTER
- NEW COMBAT GLASSES AND INSERTS (FINAL HUMAN PERFORMANCE TESTING BEING CARRIED OUT)





OVERALL RESEARCH STRUCTURE AT DRES

TWO MAIN PROJECTS:

- NEW TECHNOLOGIES FOR NEXT GENERATION CB PROTECTION
  (2A PROJECT; RESEARCHERS - 7 PROFESSIONAL; 6 TECHNICAL)

- PERFORMANCE AND DECONTAMINATION OF CB MATERIALS
  (2B PROJECT; RESEARCHERS - 4 PROFESSIONAL; 3 TECHNICAL)

PHYSICAL PROTECTION SECTION

NEW TECHNOLOGIES FOR NEXT GENERATION CB PROTECTION

OVERALL AIM:

TO GENERATE THE NEW TECHNOLOGIES IN MATERIALS, CONCEPTS, AND EQUIPMENT WHICH ARE REQUIRED TO FIELD THE NEXT GENERATION OF CB PROTECTION

TWO MAIN COMPONENTS:

- RESPIRATORY RESEARCH
- MATERIALS RESEARCH

COMMENT:

THROUGH THIS MAJOR RESEARCH PROJECT CRAD WILL CONTINUE TO HAVE RESEARCH LEVEL EXPERIENCE IN RESPIRATORY AND BODY PROTECTION, PROVIDE ADVICE TO THE CF AND THROUGH TECHNOLOGY TRANSFER CONTRIBUTE TO A STRONG CB DEFENCE INDUSTRY

NEW TECHNOLOGIES FOR NEXT GENERATION CB PROTECTION

SPECIFIC GOALS:

1. RESEARCH STUDIES ON PHYSICAL, CHEMICAL, AND ELECTROSTATIC PROCESSES FOR REMOVAL OF CB VAPOURS AND AEROSOLS

    - PRODUCTS: IMPROVED FILTER MEDIA; CANISTERS WITH SIGNIFICANTLY LOWER BREATHING RESISTANCE; NEW, MORE EFFECTIVE BODY PROTECTION

2. STUDIES TO IMPROVE AGEING, WEATHERING EFFECTS AND PROTECTION TO VOLATILE AGENTS IN CHARCOAL

    - PRODUCTS: LONGER LASTING CARBONS WITH BETTER PROTECTION FOR NEXT GENERATION FILTERS

3. INVESTIGATION OF NEW ADSORBENTS AND AIR PURIFICATION TECHNOLOGIES

    - POTENTIAL PRODUCTS: BREAKTHROUGHS MAY LEAD TO NEW CONCEPTS IN FILTRATION AND BODY PROTECTION

NEW TECHNOLOGIES FOR NEXT GENERATION CB PROTECTION

SPECIFIC GOALS (CONTINUED):

4. NEW CONCEPTS FOR FACE AND NECK SEALS TO INCORPORATE RESPIRATORY PROTECTION INTO INTEGRATED HEAD PROTECTION SYSTEMS

5. USE OF NEW MATERIALS AND DESIGNS TO ACHIEVE EFFICIENT, STREAMLINED FILTERS FOR USE IN NEXT GENERATION RESPIRATORY PROTECTION

   - PRODUCT FROM 4 AND 5: NEXT GENERATION RESPIRATORY PROTECTION AND FILTER SYSTEM WHICH CAN BE WORN AS PART OF THE INTEGRATED HEAD PROTECTION SYSTEM OR AS A STAND ALONE UNIT

6. NEW WAYS OF GENERATING 3-DIMENSIONAL DATA AND ITS USE TO LEAD TO FAST CONCEPT DEVELOPMENT AND RAPID PRODUCTION OF INITIAL PROTOTYPES OF CB PROTECTIVE EQUIPMENT

   - EFFECT ON PRODUCTS: THIS COMBINED WITH EFFICIENT TECHNOLOGY TRANSFER IS REQUIRED TO PROVIDE THE CANADIAN CB DEFENCE INDUSTRY WITH A COMPETITIVE EDGE

NEW TECHNOLOGIES FOR NEXT GENERATION CB PROTECTION

SPECIFIC GOALS (CONTINUED):

7. RESEARCH ON SPECIALIZED POLYMERS AND POLYMER BLENDS FOR USE IN CB PROTECTIVE EQUIPMENT

   - PRODUCTS: NEW MATERIALS FOR RESPIRATORS, CB BOOTS AND GLOVES.

8. RESEARCH ON POLYMER COATINGS, FINISHES AND PERMEABLE FILMS FOR USE IN CB PROTECTIVE EQUIPMENT

   - PRODUCTS: NEW APPROACHES FOR CB BOOTS, GLOVES AND BODY PROTECTION

PHYSICAL PROTECTION SECTION

NEW TECHNOLOGIES FOR NEXT GENERATION CB PROTECTION

SPECIFIC GOALS (CONTINUED):

9. ADVANCED CB PROTECTIVE CLOTHING CONCEPTS USING NEW TEXTILES, FIBRES AND NON-WOVENS

10. NEW METHODS OF INCORPORATION OF ADSORBENTS OR REACTIVE SPECIES INTO CB PROTECTIVE MATERIALS

    - PRODUCTS: STATE-OF-THE-ART BODY PROTECTION

11. NEW TECHNOLOGIES FOR COMBINING POLYMERS AND TEXTILES TO PRODUCE HIGH-PERFORMANCE HYBRIDS

    - PRODUCTS: HIGH PERFORMANCE MATERIALS FOR CB PROTECTION

CURRENT PRODUCTS OF RESEARCH IN THE PIPELINE

- NEW IMPERMEABLE AND PERMEABLE CB PROTECTIVE GLOVES
- NEW INTERIM CB GARMENT FOR HOT ENVIRONMENTS

PHYSICAL PROTECTION SECTION

PERFORMANCE AND DECONTAMINATION OF CB MATERIALS

OVERALL GOALS:

1. R&D IN THE DECONTAMINATION AND SURVIVABILITY OF CB PROTECTIVE MATERIALS

2. R&D ON PROTECTION LEVEL RESEARCH AGAINST STANDARD AND POTENTIAL AGENTS. REALISTIC PERFORMANCE DETERMINATIONS OF CB MATERIALS

3. R&D, BY CONTRACT, IN THE COLLECTIVE PROTECTION AREA

PERFORMANCE AND DECONTAMINATION OF CB MATERIALS

SPECIFIC GOALS:

1. IDENTIFICATION AND ASSESSMENT OF NOVEL APPROACHES TO PERSONNEL AND EQUIPMENT DECONTAMINATION

2. LABORATORY AND FIELD TRIALS ON PASSIVE DECONTAMINATION TO PROVIDE GUIDANCE FOR FIELD COMMANDERS

3. MAINTENANCE AND ENHANCEMENT OF THE KNOWLEDGE BASE IN DECONTAMINATION TO SOLVE CF OPERATIONAL PROBLEMS

PRODUCTS: NEW DECONTAMINANTS AND/OR EQUIPMENT TO APPLY DECONTAMINANTS; KNOWLEDGE BASE TO GUIDE THE CF OPERATIONALLY AND TO GUIDE THE DEVELOPERS OF CB PROTECTIVE EQUIPMENT

PERFORMANCE AND DECONTAMINATION OF CB MATERIALS

SPECIFIC GOALS (CONTINUED):

4. MODERN TECHNIQUES FOR QUANTIFYING THE PENETRATION OF CB AGENTS THROUGH MATERIALS AND CLOTHING

5. REALISTIC PERFORMANCE TESTS FOR NEXT GENERATION PROTECTIVE EQUIPMENT

PRODUCTS: NEW REALISTIC PERFORMANCE TESTS INCLUDING SYSTEMS TESTS

NOTE: THIS IS A VERY ACTIVE AREA INTERNATIONALLY. CANADA NEEDS TO ENSURE THAT ITS NEXT GENERATION CB EQUIPMENT WILL EXCEED THE NEW PERFORMANCE TESTS WHICH WILL BE STANDARDIZED INTERNATIONALLY

PERFORMANCE AND DECONTAMINATION OF CB MATERIALS

SPECIFIC GOALS (CONTINUED):

6. RESEARCH STUDIES ON THE SURVIVABILITY AND PENETRATION OF CB AGENTS THROUGH CB PROTECTIVE MATERIALS

7. DEVELOPMENT OF NEW STANDARDS FOR FUTURE PROTECTIVE EQUIPMENT AGAINST NEW OR NOVEL AGENTS WHICH COULD BE USED AGAINST THE CF

PRODUCTS: NEW UNDERSTANDING AND DATA BASE ON HOW AGENTS REACT WITH MATERIALS; EQUIPMENT WHICH CAN NOT BE DEFEATED BY NEW OR NOVEL AGENTS

PERFORMANCE AND DECONTAMINATION OF CB MATERIALS

SPECIFIC GOALS (CONTINUED):

8. COMPATIBILITY OF NEW CB PROTOTYPE EQUIPMENT WITH OTHER COMPONENTS OF THE INTEGRATED PROTECTIVE CLOTHING AND EQUIPMENT SYSTEM

   PRODUCT: CB PROTECTIVE EQUIPMENT WHICH IS COMPATIBLE OR PART OF THE NEXT GENERATION CF CLOTHING AND EQUIPMENT SYSTEM

9. RESEARCH THROUGH R&D CONTRACTS ON NEW COLLECTIVE PROTECTION TECHNOLOGIES

   PRODUCT: NEW COLLECTIVE PROTECTION SYSTEMS USING UNIQUELY CANADIAN TECHNOLOGIES

PHYSICAL PROTECTION SECTION

SUMMARY

1. A STRONG PHYSICAL PROTECTION PROGRAM WILL BE PART OF THE DRES CB DEFENCE PROGRAM.

2. INDUSTRY IS BEING INVITED TO INTERACT STRONGLY WITH THIS PROGRAM AT AN EARLIER POINT IN THE R&D CYCLE.

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