STATUS OF PROPOSED RULEMAKING

ADDITIONAL REQUIREMENTS FOR SUBSURFACE MONITORING

J.C. SHEPHERD, T.L. FREDRICHS, *et al*

SEPTEMBER 2006

OUTLINE

- BACKGROUND
- LEGACY SITE PREVENTION
  - OPERATIONAL REQUIREMENTS
  - FINANCIAL ASSURANCE
- DECOMMISSIONING GUIDANCE

BACKGROUND

- 1997: DOSE-BASED LICENSE TERMINATION CRITERIA (LTR)

- 2002: COMMISSION DIRECTED REVIEW OF IMPLEMENTATION ISSUES INCULDING:
  - RESTRICTED RELEASE - INSTITUTIONAL CONTROLS
  - LEGACY SITES

BACKGROUND (Con'd)

- 2003: SECY-03-0069 EVALUATED NINE ISSUES INCLUDING:
  - PREVENTING FUTURE LEGACY SITES
    - FACILITY OPERATION (ATTACHMENT 8)
    - FINANCIAL ASSURANCE (ATTACHMENT 7)
  - DECOMMISSIONING GUIDANCE
    - RESTRICTED RELEASE
    - REALISTIC LAND USE SCENARIOS

OPERATIONAL REQUIREMENTS

- REVISE CONTAMINATION CONTROL
  - MONITORING
  - REMEDIATION
- ENHANCE NRC OVERSIGHT
  - INSPECTION
  - ENFORCEMENT

RISK INFORM PART 20

- SUBSURFACE CONTAMINATION
  - OFTEN NOT IDENTIFIED DURING OPERATION
  - CONTRIBUTOR TO DECOMMISSIONING COST
  - LIMITED TO SOME TYPES OF SITES

- IDENTIFY POTENTIAL LEGACY SITE TYPES
  - REVIEW OF 82 DECOMMISSIONING SITES
  - REVIEW DECOMMISSIONING FUNDING

REVISIONS TO §20.1406

- EXISTING REQ'TS
  - NEW APPLICANTS ONLY
  - DESIGN AND PROCEDURES TO MINIMIZE SITE CONTAMINATION
  - FACILITATE DECOMMISSIONING

- PROPOSED REQ'TS
  - **ALL** LICENSEE-APPLICANTS
    - DESIGN & PROCEDURES TO
      - DETECT CONTAMINATION
      - MINIMIZE CONTAMINATION
  - **CERTAIN** LICENSEES
    - MONITOR SUBSURFACE
    - UPDATE FINANCIAL ASSURANCE
    - ACTION TO LIMIT MIGRATION IF APPROPRIATE

MONITOR FOR CONTAMINATION

- INSIDE FACILITY
  - SYSTEM INSTRUMENTATION (p, t, level)
  - MOISTURE (floor)
  - SUMP LEVELS, etc.

- OUTSIDE FACILITY
  - SURFACE
  - SUBSURFACE (ALL MEDIA)

SUBSURFACE MONITORING

- DEFINE SITE HYDRO-GEOLOGY
- DEFINE VARIATIONS IN SITE ENVIRONMENTAL CONDITIONS
- DETERMINE POTENTIAL SOURCE(S) AND LOCATION(S) OF FACILITY-GENERATED CONTAMINATION
- EVALUATE EXTENT OF CONTAMINATION FROM FACILITY

RESPONSE(S) TO RELEASES

- DEFINE ACCEPTABLE LICENSEE RESPONSE PROGRAM TO ADDRESS:
  - ELEVATED CONTAMINATION FOUND
  - LARGE PROCESS SPILL OCCURS
  - STORAGE / DISPOSAL AREA LEAKS

NRC OVERSIGHT

- INCREASE INSPECTION EMPHASIS
  - DECOMMISSIONING RECORDS (SPILLS, ETC.)
  - ENVIRONMENTAL MONITORING RESULTS

- ENFORCEMENT
  - RECORD KEEPING
  - REPORTING

INDUSTRY THOUGHTS

- [A DECOMMISSIONING] GROUND WATER INVESTIGATION PROGRAM HAS … A SIGNIFICANT EXPENDITURE OF RESOURCES

- INVESTIGATING AND MONITORING … [OF] GROUND WATER SHOULD BEGIN EARLY

INDUSTRY THOUGHTS

- THOROUGHLY CHARACTERIZE THE STRATIGRAPHY OF A SITE … [TO THE] FULL DEPTH OF … GROUND WATER

- BECAUSE OF THE IMPORTANCE OF [GW] ANALYTICAL DATA IN MAKING DECISIONS … A ROBUST PROGRAM OF QA AND QC SHOULD BE IMPLEMENTED

FINANCIAL ASSURANCE (MATERIALS)

- TO MANAGE RISK OF UNDERESTIMATING DECOMMISSIONING COSTS, EITHER:
  - NRC APPROVAL FOR UNRESTRICTED RELEASE
  - DEMONSTRATE RELEASE REQUIREMENTS FOR RESTRICTED RELEASE PER 10 CFR 20.1403

FA (Con'd)

- RISK-INFORMED APPROACH TO INDICATORS
  - SPILLS
  - SUBSURFACE (GROUNDWATER) CONTAMINATION
  - FACILITY MODIFICATION
- REQUIRE ASSOCIATED UPDATES TO
  - DECOMMISSIONING COST ESTIMATES
  - FINANCIAL ASSURANCE

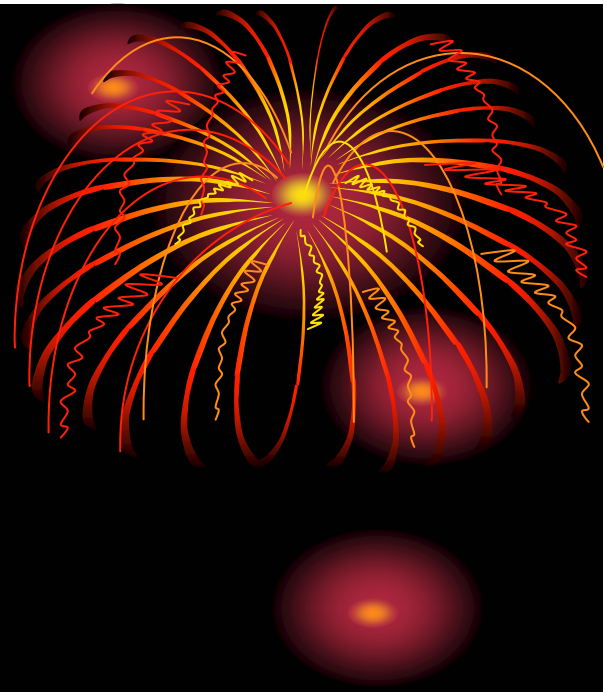
SUPPORTING GUIDANCE

- DEFINE ACCEPTABLE APPROACHES TO:
  - MONITORING
  - SAMPLING
  - ACTION LIMITS
    - DECOMMISSIONING RECORD KEEPING
    - PROMPT REMEDIATION
    - INCREASE DECOMMISSIONING FUNDING (MATERIALS SITES)

SCHEDULE

- CURRENT SCHEDULE
  - PROPOSED RULE: 3/07
  - FINAL RULE: 3/08

- DELAY FROM PART 50 CONSIDERATIONS
  - RADIOLOGICAL ENVIRONMENTAL MONITORING
  - TRITIUM RELEASES
    - NRC ACTIONS
    - INDUSTRY ACTIONS



THE END