Developing and Implementing a Corporate Buy-Quiet Strategy
On-the-ground lessons from NASA

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Buy/Design Quiet concept

- Control the noise (not the exposure)
  - Controlling the noise controls the exposure
- Buy-Quiet
  - Buy future equipment that is "quiet"
  - Manufacturer assumes financial and design risk
- Quiet-by-Design
  - Design future systems that are "quiet"
  - NASA is the "manufacturer" for in-house designs

Two fundamental questions

- Why create a low-noise workplace?
- Why is it so important to buy quiet equipment instead of buying equipment without regard for noise emissions and THEN trying to make it quiet?
- (See me if you need answers!)

Weighing the cost of Buy-Quiet

- Consider the long-term cost of a hearing conservation program
  - **Required retrofit noise control solutions**
  - Noise exposure monitoring
  - Audiometric monitoring
  - Audiogram review and follow-up
  - Hearing conservation training
  - Personal hearing protective devices
  - Recordkeeping
  - Program management

Weighing the cost of Buy-Quiet

- . . . plus the costs of <u>inevitable</u> hearing loss
  - Hearing loss claims (Workers' Compensation cost)
  - Lifetime medical follow-up
  - Hearing aids and batteries
- Each exposure to hazardous noise has a cost
  - These costs can be modeled and estimated
  - Quantifying these costs is essential for effective advocacy
  - **Successful long-term Buy-Quiet programs result in significant cost savings over time**

Won't it cost more to Buy Quiet?

- . . . plus the costs of inevitable hearing loss
    - Hearing loss claims (Workers' Compensation cost)
    - Lifetime medical follow-up
    - Hearing aids and batteries

- **Quantifying these costs is essential for effective advocacy**

Is "low-noise" equipment available?

- Most manufacturers can offer manufacturer-supplied controls for nominal product
- Demand increases supply (think IT and consumer product industries)

Benefits of *formalized* BQ process

- An official corporate position sends a message
  - NASA's program has been widely noted
  - NIOSH is incorporating our *Roadmap*
- Publicly visible programs create a precedent
  - The <u>existence</u> of one program helps launch others
  - One company's program fuels another's advocacy
  - NASA *Roadmap* reflects best external programs
- Some vendors won't quote low-noise products unless <u>formally</u> requested
- Formal specifications level the field

- **Voluntary product noise labeling is crucial!**

NASA Buy-Quiet Program goals

- Establish a low-noise workplace
  - Reduce noise-induced hearing loss
  - Improve safety and productivity
- Influence NASA workforce to be proactive
  - Find, evaluate and select low-noise products
  - Design low-noise equipment and systems
- Harmonize with infrastructure and culture
  - Government procurement mechanisms
  - Site-specific operations and culture

NASA Agency-wide requirements

- Each field center must develop and implement a center-specific program to:
  - *"Include noise emissions with technical and performance criteria* when purchasing or designing new equipment that is expected to generate noise emission levels of concern for hearing conservation (80 dBA and above)."
- Noise emissions shall be considered <u>equally</u> with all other requirements.

- Language intentionally left vague to allow Centers to develop site-specific programs

Implementation challenges
for Buy-Quiet Program

- Diversity in operations, culture across Centers
- Responsibility distributed throughout Center
- Advocacy and training are major tasks
  - Technical content outside EH&S scope of practice
  - Program "users" (requestors) are outside EH&S
  - Centers have multiple contractors and tenants
  - Stakeholders are unfamiliar or skeptical (or both)
- Contractor compliance must be monitored
  - Can only "suggest" without a contract requirement
- Senior management enforcement is critical

Meeting the BQ requirement

- Implementation must be site-specific
  - Organization, communications, and procedures
- HQ-provided program/tech support
- Responsible POC in each EH&S organization
- Series of six-month steps established by HQ
- Periodic (~6 mo) status review telecons
- Video and conference training sessions
- Frequent meeting presentations and updates
- Enforcement via HQ audit team site visits
  - Checklists mirror goals discussed in status reviews

Implementation steps toward development of site-specific programs

1. Identify POC and EH&S internal team
2. Modify site-specific policy document
3. Conduct series of awareness briefings
4. Develop cross-functional team
5. Develop internal detailed procedures
6. Include Contractor organizations
7. Conduct "how-to" briefings on procedures
8. Implement *Buy-Quiet Process Roadmap*

Buy-Quiet Process

- Requestor researches and identifies achievable noise *emission* criterion that supports noise *exposure* criterion
- Noise emission criterion (limit) language included in specification
- Submittal data required prior to purchase
- Selection considers cost <u>and</u> noise emission
- Shop verification test before shipment
- Field verification test after installation

Proactive approach yields innovative implementation

- Help Centers effectively implement policy
- Provide education, guidance and tools
  - Applicable beyond NASA and contractor programs
- Assume National leadership role for NASA
  - Join NIOSH, Federal agencies, Armed Services
  - Set example for corporate programs
- Contribute to the state of the art
  - Program models and resources
  - Encourage more noise emission data
  - Support voluntary product noise labeling (INCE)

NASA Buy-Quiet Process Roadmap

- Web-based tool

- Provides stepwise process guidance

- Developed for NASA but applicable externally

- Technical content by Nelson Acoustics; web design and content editing by Gelfand Design

- Incorporates best practices from corporate, military, government programs

- Incorporates manufacturer–provided data on availability and cost of low-noise equipment

- Contributions from 20+ organizations*

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Buy-Quiet Purchasing

NASA field centers and facilities are required to maintain site-specific "Buy-Quiet" programs that guide the identification, evaluation, and selection of low-noise products in a manner that is both consistent with NASA procurement policies and compliant with Agency-mandated hearing conservation directives.

Advocating for a low-noise workplace, including the implementation of a Buy-Quiet Program, is an important first step toward the goal of routine selection of low-noise equipment. Before implementing the *Buy-Quiet Process Roadmap*, educate your stakeholders about the long-term benefits of a low-noise work environment using publicly available advocacy resources from other successful Buy-Quiet programs.

The NASA *Buy-Quiet Process Roadmap*

A Web-based *Buy-Quiet Process Roadmap* provides requestors with a guided path through the procurement process and provides flexibility for field centers to customize the resources for site-specific application. The *Roadmap* incorporates elements of several successful best-practices programs, based on a survey of industrial, government, and military organizations in the United States. A common factor in these programs, which has been adopted in the NASA *Roadmap*, is a maximum equipment noise emission specification of 80 dBA. In addition to a stringent noise specification, the *Buy-Quiet Process Roadmap* incorporates field verification requirements as well as a means for estimating the cost of relevant noise exposure over a career, and it provides links to extensive online databases documenting typical noise emission for a wide variety of equipment types.

The *Buy-Quiet Process Roadmap* is intended primarily for use by NASA field centers and facilities. It is intended to be generic and flexible enough to apply to a broad range of industries and equipment classes, but it must be customized to meet the site-specific needs of each audience. Non-NASA organizations are invited to adapt the *Roadmap* to their operations but are cautioned that NASA does not provide technical support for the *Roadmap* or for any auxiliary resources associated with it.

Technical content for the Roadmap was developed for NASA by David Nelson of Nelson Acoustics 🔗. Amy Gelfand of Gelfand Design 🔗 provided content editing and Web site design. The current (beta) version of the *Roadmap* is hosted on the Gelfand Design Web site at http://nasa.amygelfand.com 🔗.

Go to the Buy-Quiet Process Roadmap »

Google: NASA Buy-Quiet Process Roadmap

RELATED RESOURCES

"Buy-Quiet" and "Quiet-by-Design" (Conference Presentation)

Buy Quiet: On the Ground Experience at NASA (Conference Presentation)

Why Buy Quiet? Understanding the Need (Conference Presentation)

Development and implementation of policy-compliant site-specific Buy-Quiet programs at NASA (Conference Paper)

A Buy-Quiet Program Incorporating Career-Cycle Noise Costs (Conference Paper)

NASA Buy-Quiet Program Advocacy PowerPoint® slideshow presentation

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Buy-Quiet Process Roadmap
Key external contributors

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- Cisco
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- Toro
- Carrier
- ExxonMobil

- Colgate Palmolive
- Trane
- 3M
- Becton Dickinson
- General Motors
- Air Force
- Navy
- National Park Service
- NIOSH

NASA Buy-Quiet Process Roadmap
Key features

- Relevant to hearing-conservation scenarios
  - Considers community noise impact
- Leads user through step-wise process
  - Procurement planning
  - Research available equipment
  - Specification development
- Includes key decision points
  - Noise emission criterion
  - Simplest allowable procurement vehicle
- Includes customizable templates and forms
- Authorization forms promote *responsible* exceptions

NASA Buy-Quiet Process Roadmap
NASA-specific features

- Default procurement vehicle is "tradeoff process"
  - Formalizes comparison of equipment differing in noise, cost
  - "Cost of noise" calculation calculates net present value of long-term exposure to each candidate
  - Weigh purchase price against long term cost as part of selection process
  - (True $ = purchase $ + long-term noise exposure $)
- Simpler procurement vehicles allowed for low-risk cases, based on input data
  - Government commercial purchase card purchases
  - GSA schedule purchases
  - Lowest-price technically acceptable procurements

Getting there . . .

- Low-noise product design _is_ possible
- Manufacturers must advertise quiet products
- "Level playing field" promotes competition
- Corporate consumers (we) must be proactive
- Demand will increase supply
- Product noise labeling initiative in progress
- Successful corporate programs do exist
- Resources, models and help are available!