Navigating Notifications and Permits; Design Protocols

BRS Stakeholder Meeting
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Susan M. Koehler, Ph.D.

Outline

- Notifications
- Permits
- Design Protocol Issues
- Common Mistakes & Questions

Notifications vs. Permits

	Notification	Permit
Organisms	Plants (not weeds)	Plants, Microorganisms & Animals
Genes/donors	Eligibility Criteria apply	Any
Confinement Protocols	Performance Standards design protocols attached	▪Applicant provides confinement details in the permit application ▪APHIS issues supplemental permit conditions
Inspections	Percentage based on risk	At least 1/site/state/permit
Reports	▪Activity Report (Planting) ▪Unintended Effects ▪Unintended Release ▪Field Test Report	▪Activity Report (Planting) ▪Unintended Effects ▪Unintended Release ▪Volunteer Monitoring Report ▪Final Field Test Report

Six Notification Criteria

1) Regulated article not a noxious weed or considered a weed in area of release
2) Introduced genetic material stably integrated
3) Function of the genetic material known and expression does not result in plant disease
4) Introduced genetic material does not:
   I. Produce an infectious entity
   II. Encode substances likely to be toxic to non-targets
   III. Encode products intended for pharmaceutical or industrial use

Six Notification Criteria cont.

5) Plant virus-derived sequences must be:

   I. Noncoding regulatory sequences of known function, or

   II. From viruses prevalent and endemic where the introduction occurs that normally infect the regulated plant species, and do not encode a noncapsid movement protein

6) No donor sequences from human or animal pathogens that are viruses or likely to cause disease

Genetic Information Requirements

- Phenotype/Genotype Descriptions
  - Identical requirements in notifications and permits
- Component Type and Name
  - Use appropriate component types: gene of interest, gene silencer, marker genes
  - Short descriptive name for each component
  - Only use common abbreviations (ex. 35S, NPTII, NOS, etc.)

Genetic Information Requirements

- Donor Organism
  - Must be the scientific name (Genus and species)
  - Use drop-down menu
  - Include for ALL construct components
- Component Descriptions
  - Gene function must be known for notifications
  - If available, include peer-reviewed references

Common Mistakes

- Different genetic components given the same name
  - Use same name only for identical components
- Common name used as donor organism
  - Use full virus name or genus and species
- Not all genetic components and donors are listed
  - Selectable marker often omitted
  - Hairpin silencing constructs should list both sense and antisense component and intron and donors for each.
- Some virus sequences don’t meet criteria

Common Questions or Issues

- Can a GE perennial come under notification?
  - If it meets eligibility criteria, is not a weed and release is terminated in one year or less
- Release permits may be required for:
  - Sorghum – Can hybridize with the noxious weed Johnsongrass
  - Camelina – Can be weedy and hybridize with weedy relatives
  - Large acreage releases – Need for more oversight, management plan, amendments, etc.

Performance Standard #1

Shipping and Maintenance at Destination

- Describe how regulated material will be prevented from dissemination during transit
  - Describe packaging, labeling, storage

Performance Standard #2

Inadvertent Mixing of Materials in Environmental Releases

- Describe planting and harvest protocols
  - Describe separation from non-regulated plots.
  - Describe protocol for cleaning equipment.
  - Describe how any seed or fruit produced will be kept out of the food and feed supply.

Performance Standard #3

Maintaining Identity and Devitalization

- Describe how integrity of material will be maintained at all times.
  - Describe labeling and packaging.
  - Describe methods to identify the release site.
  - Describe methods to devitalize regulated materials after use.

Performance Standard #4

Elimination of Viable Vector Agent

- Describe protocol used to eliminate viable vector agent from the regulated material
  - Typically eliminated *in vitro* with antibiotics
  - Mainly an issue with clonally propagated crops transformed with *Agrobacterium*
  - Not an issue with biolistics transformation

Performance Standard #5

Persistence in the Environment

- Describe methods used to ensure regulated material and progeny remain confined to release site
  - Describe isolation distances, border rows, fallow zones, use of temporal isolation, cages, tents, flower removal, bagging, etc.
  - Describe proximity to sexually-compatible crops and wild relatives.

Performance Standard #6

No Volunteer Plants

- Describe how the field trial will be terminated
  - Disking, plowing, burial, herbicides, etc.
- Describe how volunteers will be managed
  - Frequency of monitoring
  - Duration of monitoring
  - Devitalization of encountered volunteers
  - Post harvest crop restrictions to allow detection and devitalization

Design Protocol Issues

- Separation distances
  - AOSCA certified seed production distances commonly used
  - Greater distances may be required from:
    - Seed production fields of same or sexually compatible crop species
    - Sexually-compatible wild relatives
- Bagging, tenting
  - Describe timing
  - How these are secured and monitored

Design Protocol Issues cont.

- Temporal isolation
  - Describe how temporal isolation will be documented
- Buffer rows to attract pollinators
  - Sufficient size to effectively reduce outcrossing
  - Should be continuous, no gaps
  - Post pollination management, destruction, monitoring

Design Protocol Approval

- APHIS may ask you to revise Design Protocol if key details are lacking or are unacceptable

- Design protocol pre-approval process:
  - Some applicants submit design protocols prior to the season.
  - APHIS reviews and approves these prior to receiving the notifications.
  - Process open to all applicants.
  - Any changes should be re-reviewed.

Guidance for Design Protocols

- BQMS Template for Notification Design Protocols
  - http://www.aphis.usda.gov/biotechnology/downloads/BQMS/CA_1004_template_BQMS_%20Notification_Design_Protocol_v1.1_102512.docx
- BQMS Template for Permit Design Protocols
  - http://www.aphis.usda.gov/biotechnology/downloads/BQMS/CA_1005_Template_Permit_Design_Protocol_v1.1_102512.doc
  - Enter in Section 13 of permit application: production design, destination description, confinement protocols, final disposition
- BQMS participation not required to use templates

Release Site Information Requirements

- GPS coordinates must be decimal format:
  - At least 4 GPS coordinates around the field and area to be monitored
  - If one coordinate pair, should be the northwest corner of the field.
    - Original guidance was to use the center.
- Release Site History
  - Specify years and types of managed agriculture, pasture, forest, or fallow.
  - Changes in land use could impact threatened & endangered species

Release Site Information Requirements

- Designated Critical Habitat
  - If site and/or area to be monitored is within, or close to designated or proposed critical habitat:
    - Provide species with designated critical habitat
    - Analyze effects of proposed release on critical habitat
    - Describe any measures to minimize disturbance of critical habitat

Common Mistakes or Issues

- GPS Coordinates not in correct format
  - Coordinates must be in decimal format (longitude negative)
  - Websites are available for conversion
- GPS Coordinates are not in agricultural land
- Release site action area is indicated as in critical habitat when it is not

Navigating Permits – Type and Purpose

- Permit Type
  - Standard permits – new, amendment or renewal
  - Courtesy permits
- Purpose of Permit
  - Industrial Product (PMI)
  - Pharmaceutical Product (PMP)
  - Phytoremediation
  - Traditional

Permit Conditions

- Supplemental Permit Conditions
  - Specific conditions added by APHIS
    - Pollination control
    - Separation from wild relatives
    - Post harvest volunteer monitoring
    - Management plans, SOPs, or training programs
  - Applicant agrees to each condition
- Conditions added by States
  - Not enforced by APHIS

Pharmaceutical, Industrial Compounds or Phytoremediation

- Dedicated storage facilities
- Dedicated planting and harvesting equipment
- SOPs for:
  - Cleaning of field equipment
  - Seed cleaning & drying equipment
  - Storage facilities
- APHIS approved training program

Pharmaceutical, Industrial Compounds or Phytoremediation

- Increased separation distances from adjacent fields
- Perimeter Fallow Zone - 50 ft
- Restrict the production of food and feed crops next growing season
  - Variances may be granted
- Increased number of inspections

Permit Amendments

- Amendments
  - Made after a permit is issued, before expiration date
  - Administrative & review steps same as for permit
  - Amended via web forms method of entry, not XML
- Clearly describe proposed changes, e.g.:
  - Add genetic constructs, release sites or facilities
  - SOPs, design protocols, disposal methods
  - Size of shipments or acreage
  - Change planting date, as long as <u>after</u> effective date and <u>before</u> expiration date

Permit Amendments

- Amendments may not be used to:
  - Change the effective or expiration dates
  - Add new recipient species
  - Add new plantings/releases that extend beyond the expiration
  - Remove a release location or construct

Permit Renewals

- Renewals
  - Provide permit number being renewed
  - Information from previous permit will be copied into the new ePermits application
  - Then modify as needed and describe in "Additional Information" section
  - Update the land use history to include recent field release activity.
  - Administrative process similar to a new permit
  - Renew multiyear tests <u>before they expire</u> if you want to continue them

Common Questions or Issues

- Does application number have any meaning
- Applicant = Responsible party, not preparer
  - US resident, and not a temporary employee
- Length of review by APHIS and States
  - Depends on the type of introduction
- Page Limitations (<500)
- Unique location ID
- Shipping container requirements and variances
- Permit number omitted from outer packaging
  - All shipments require notification or permit number on each outer container.

Common Questions or Issues

- Am I regulated?
  - If you don't think your GE organism meets definition of regulated article see: http://www.aphis.usda.gov/biotechnology/am_i_reg.shtml
  - Request an opinion before submitting an application
  - APHIS has issued over 15 responses
  - Courtesy Permit can be requested to facilitate movement when it might otherwise be impeded
- Some regulated articles may also require permits from other APHIS programs
  - PPQ permit for an importation
  - VS permit for animal products or biologics

Common Questions or Issues

- CBI and Justifications
  - Justifications must be related to competitive harm
  - Should cover all categories of information claimed CBI
  - Information that can be claimed as CBI and definitions of commercial or financial harm and document prep, see: http://www.aphis.usda.gov/brs/pdf/Doc_Prep_Guidance.pdf
- The following are NOT typically considered CBI:
  - Names and addresses of responsible parties
  - Organization
  - Recipient organism
  - Phenotypic category
  - County and state

Design Protocols

Questions?

BRS Guidance Documents

- Notification Guidance Document
  - New Notification guidance developed in 2011:

http://www.aphis.usda.gov/biotechnology/downloads/notification_guidance_0311.pdf

- Permit Guidance Document
  - New BRS permit guidance developed in 2012:

http://www.aphis.usda.gov/biotechnology/downloads/permit_guidance.pdf