Shale Gas Development in New York

Environmental Issues and the Emerging Regulatory Framework

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environmental history

environmental issues

2011 SGEIS & emerging regulations

New York

New York’s environmental history

From 1960

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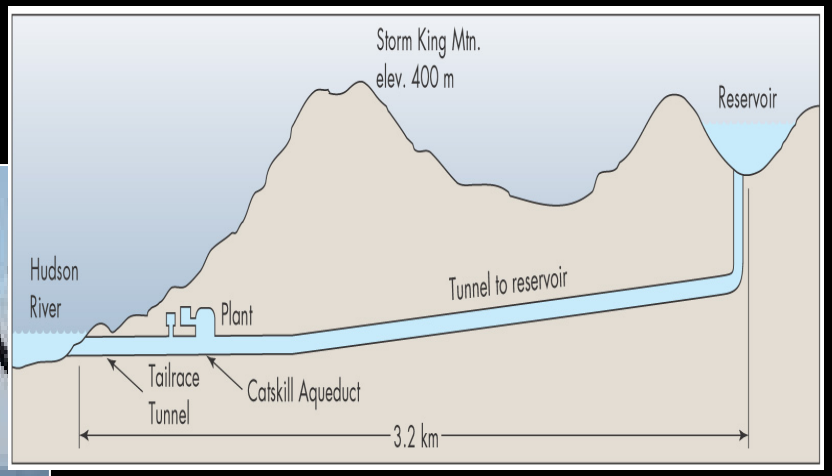
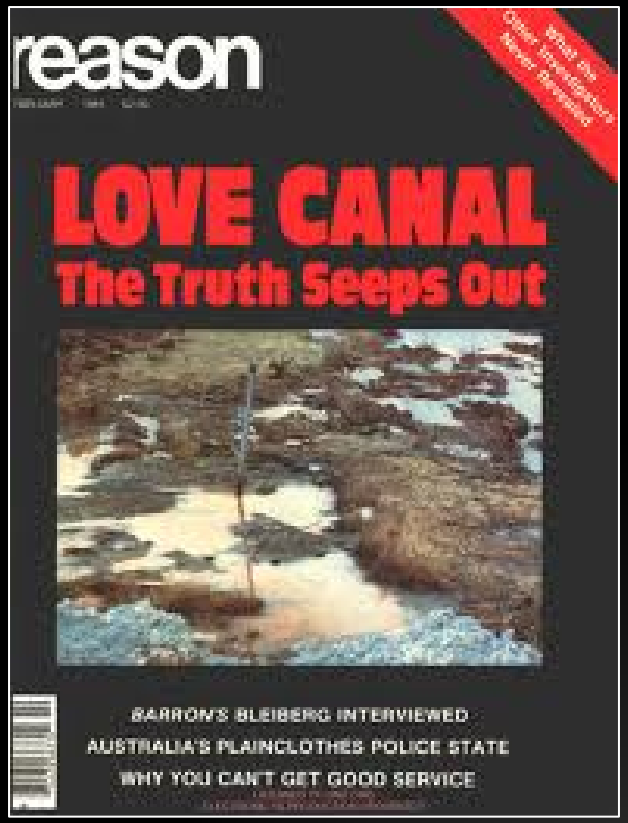
Scenic Hudson, Clearwater, - Pete Seeger
Riverkeeper – RFK Jr.,
Waterkeeper Alliance



1965 – 1979 Storm King Mountain

Led to enactment of CERCLA - Superfund



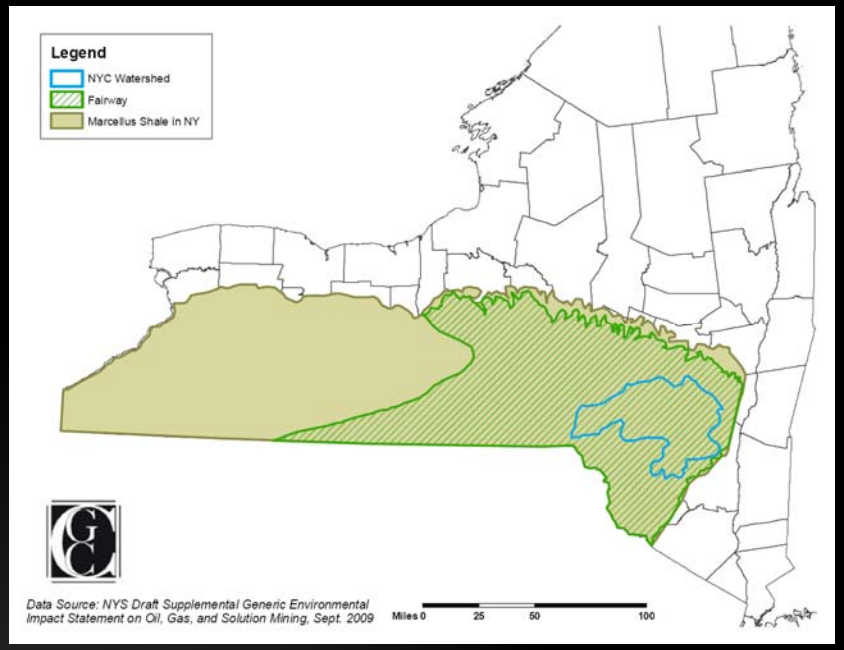
1978 Love Canal

1962 – 2011

Incidents, cooling water CWA violation, recertification

Indian Point Nuclear Plant

1997 - Unfiltered water supply with filtration exemption



NYC Reservoir System

social compact re environment, two generations

long-established environmental advocacy organizations

downstate power base

affects legislative action in Albany

environmental activism

history of confrontation and winning

New York's regulatory framework

high-volume hydraulic fracturing

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July 2008 - DEC begins SGEIS review process

Oct 2008 – Draft SGEIS scope issued, 90-day public comment period begins, 6 public hearings

Sept 2009 – DEC releases dSGEIS

Oct -Dec 2009 – 90-day public comment period, 4 hearings, 13,000+ comments

April 2010 – DEC announces NYC & Syracuse Watersheds not covered by SGEIS

July-Sept 2011 – DEC releases revised dSGEIS

Oct-Dec 2011 – 90-day public comment period, 4 hearings

Supplemental Generic Environmental Impact Statement - SGEIS

July 2008 – December 2011

SGEIS - environmental issues

risks & impacts

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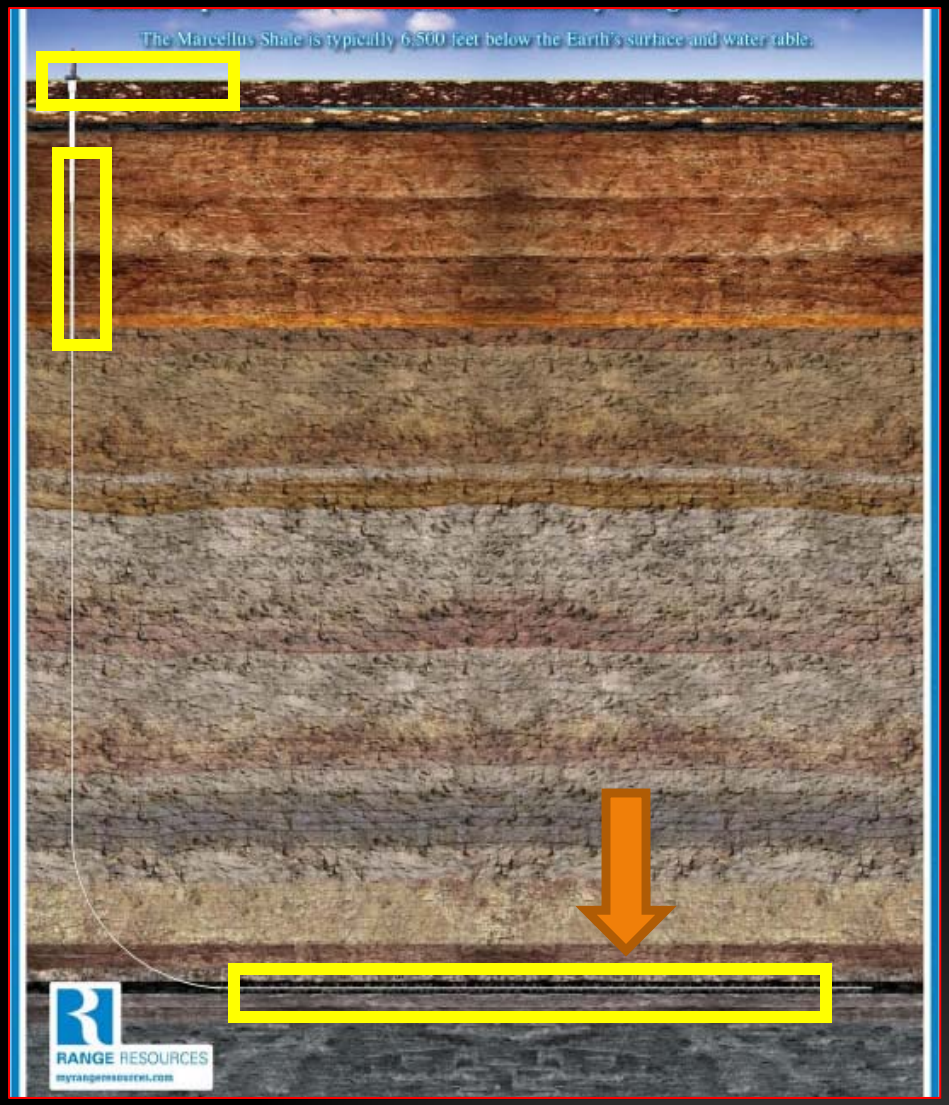
environmental issues

- deep subsurface
- shallow subsurface
- surface



Environmental Issues

deep subsurface

- fracking

- chemical migration

- potential aquifer contamination

- earthquakes

Environmental Issues

shallow subsurface

- methane migration

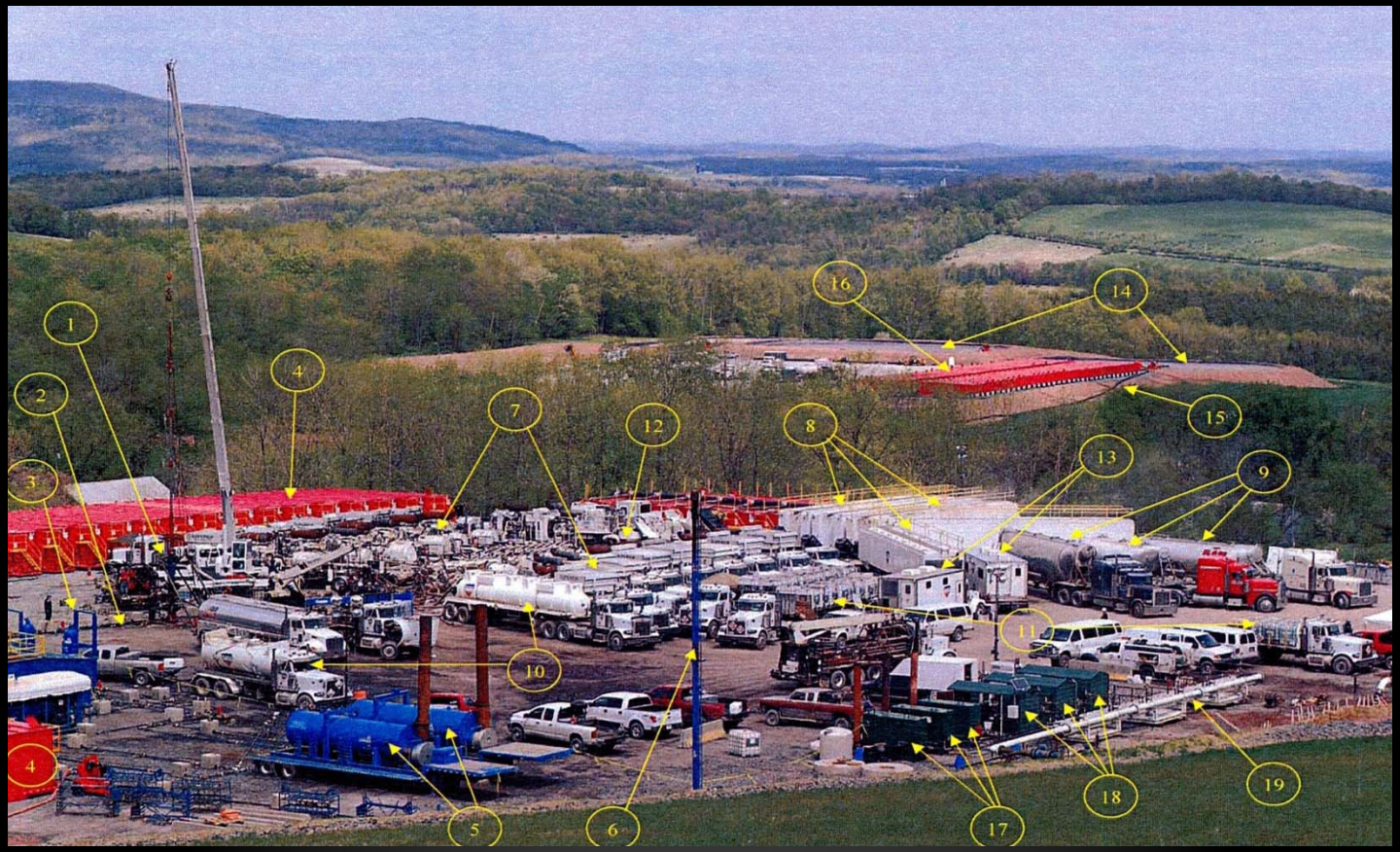
- cement/casing defects

- potential aquifer contamination

Environmental Issues

surface

- spills
- stormwater
- air
- ecological impact
- water quantity
- wastewater management
- community character



surface risks & impacts

leaks & spills

surface risks & impacts

habitat fragmentation

surface risks & impacts

stormwater

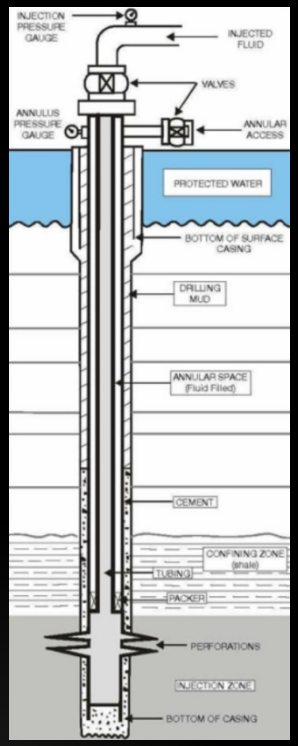
traffic

noise

surface risks & impacts

treatment

disposal



wastewater management

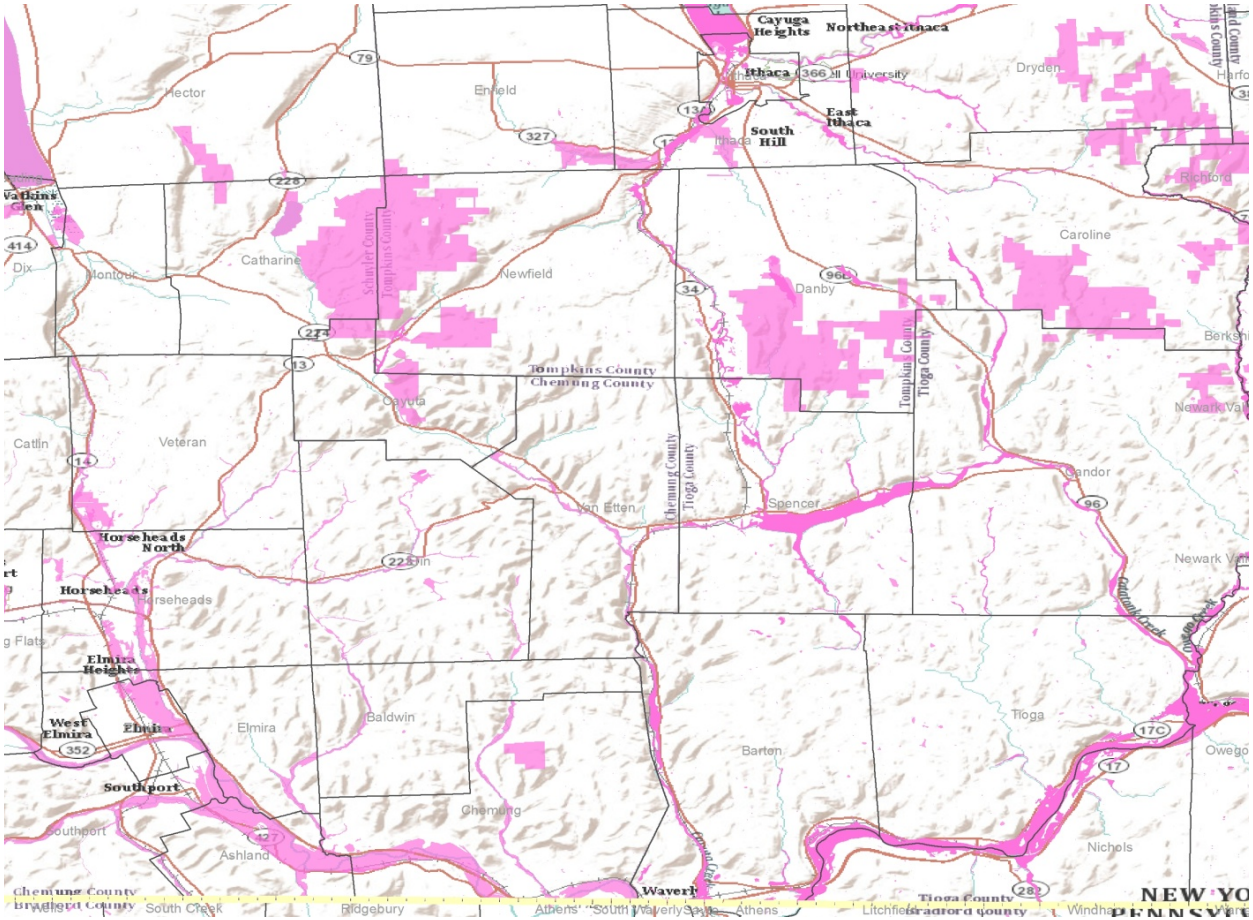
prohibitions

operational requirements

permit requirements

Draft SGEIS - 2011

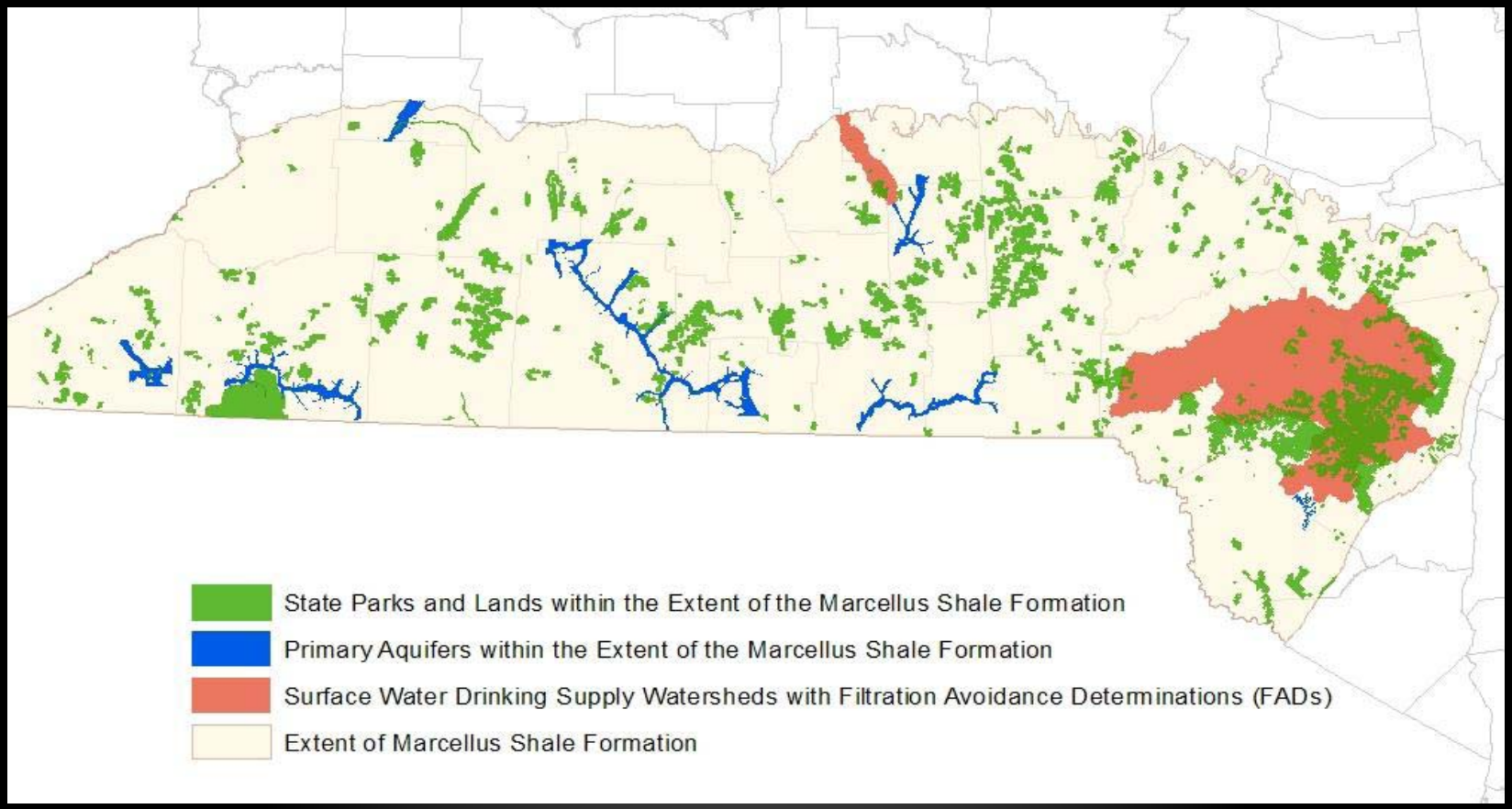
proposed guidelines



prohibitions

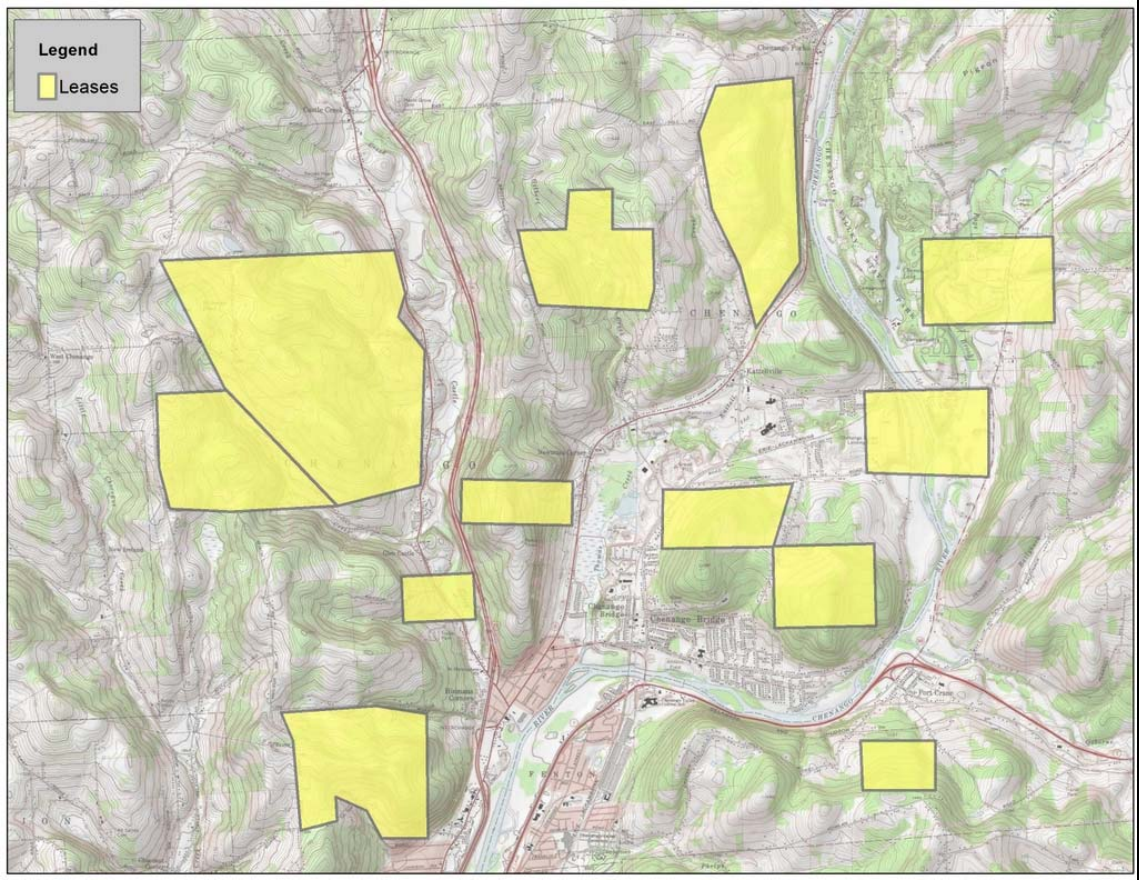
additional environmental review

well pad encumbrances



Prohibited Areas

NYC & Syracuse Watersheds, Primary Aquifers, State Parks, State Forests, Wildlife Mgmt Areas



SGEIS well pad placement encumbrances

prohibitions or additional environmental studies

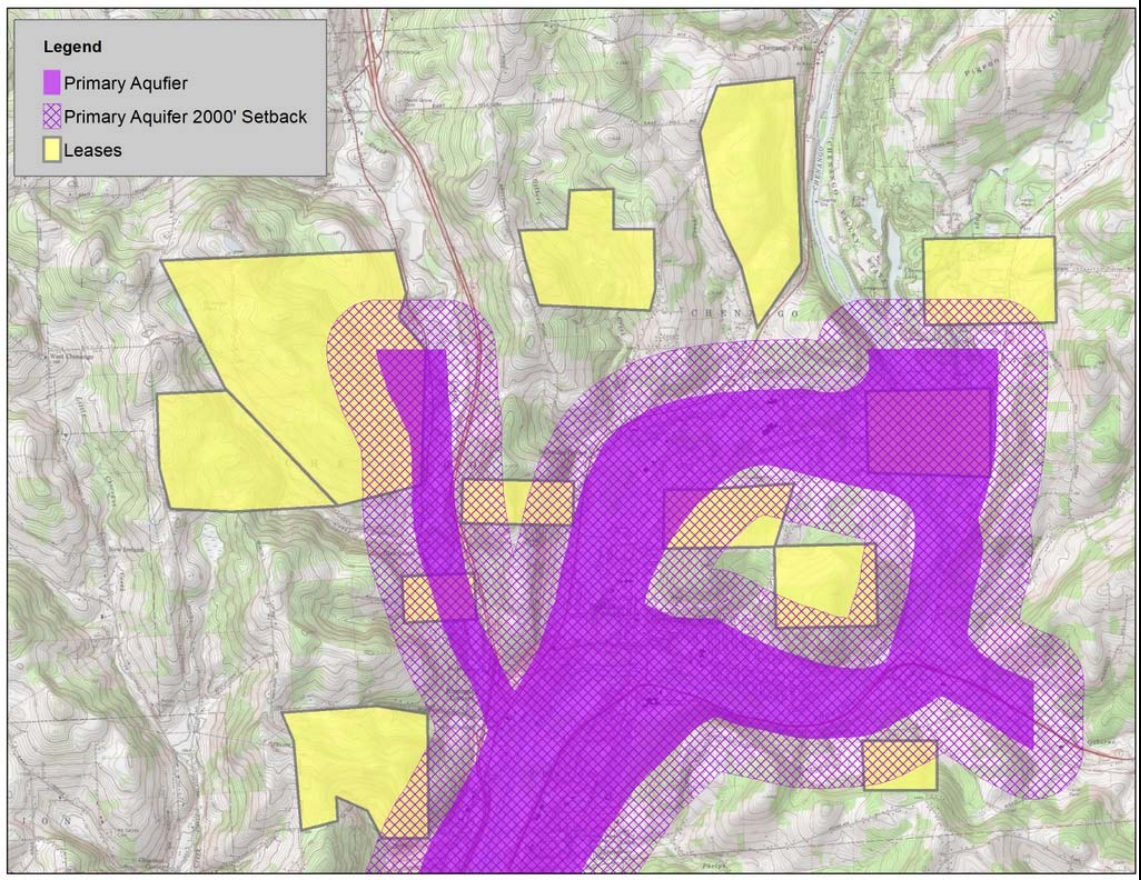
PROTECTED FEATURE	SETBACK DISTANCE
18 Primary Aquifers*	2000 ft
FAD‡ Watershed (NYC, Syracuse)	4000 ft
NYC Water Tunnel, Aqueduct	1000 ft
100-Year Floodplain	
State Forest	
State Wildlife Mgmt Area	
State Parks	

* subject to re-evaluation after 2 years of permitting

‡ FAD = Filtration Avoidance Determination (EPA)

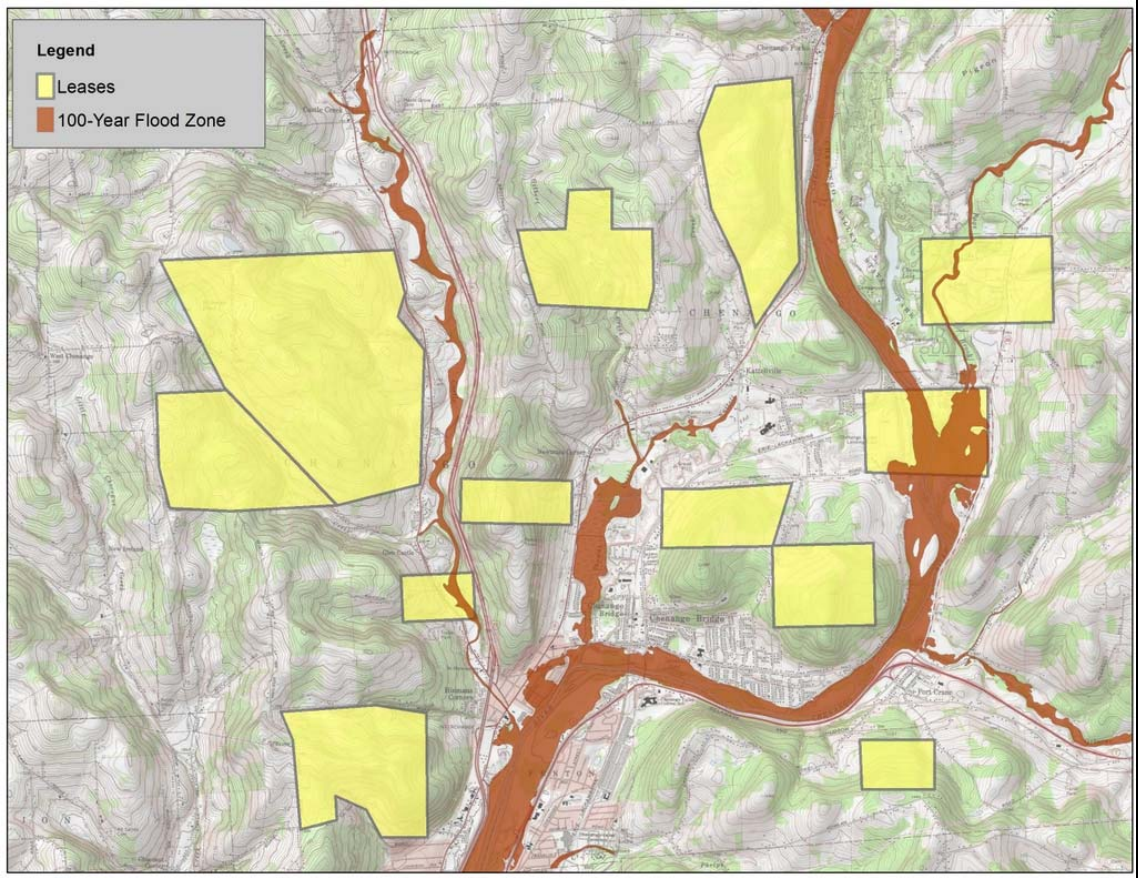
dSGEIS - prohibitions

well pad siting



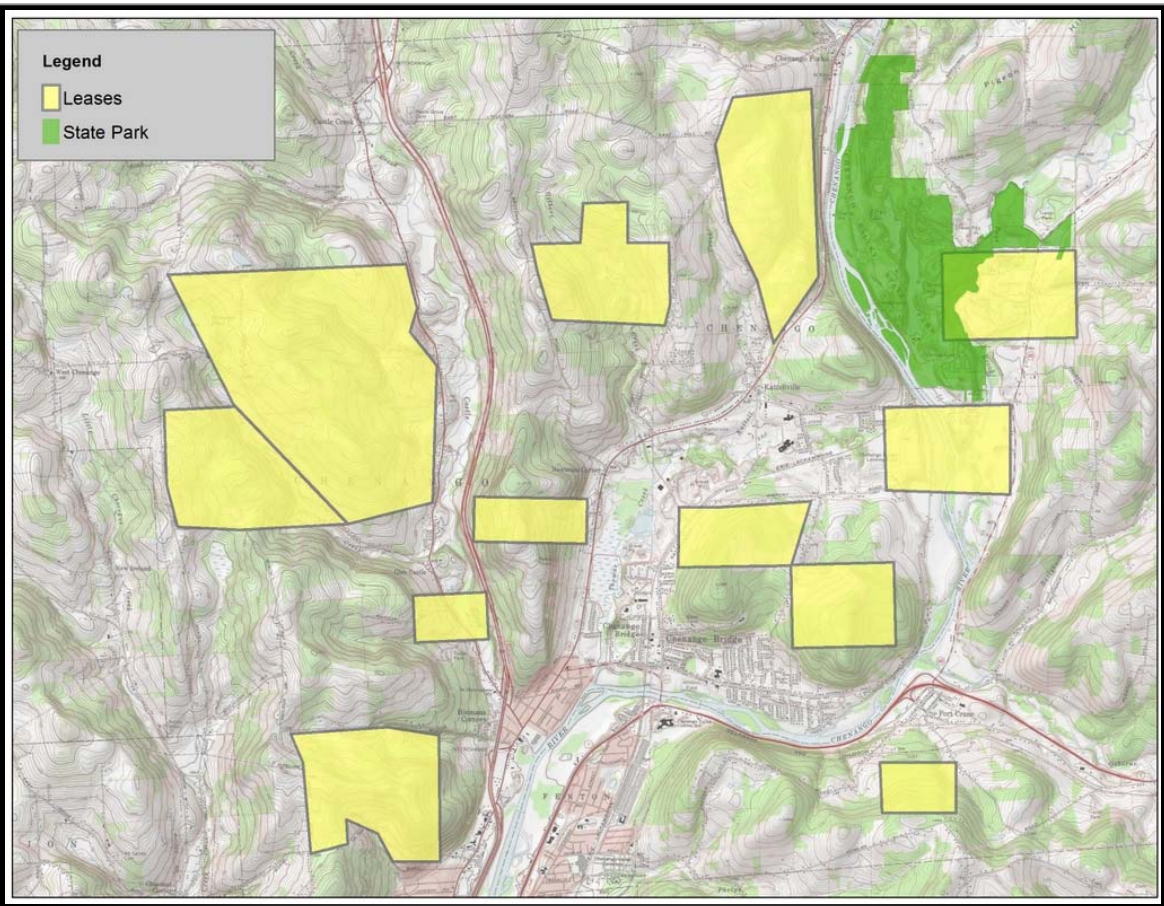
SGEIS well pad placement encumbrances

primary aquifers + 2,000-ft setback



SGEIS well pad placement encumbrances

100-year floodplains



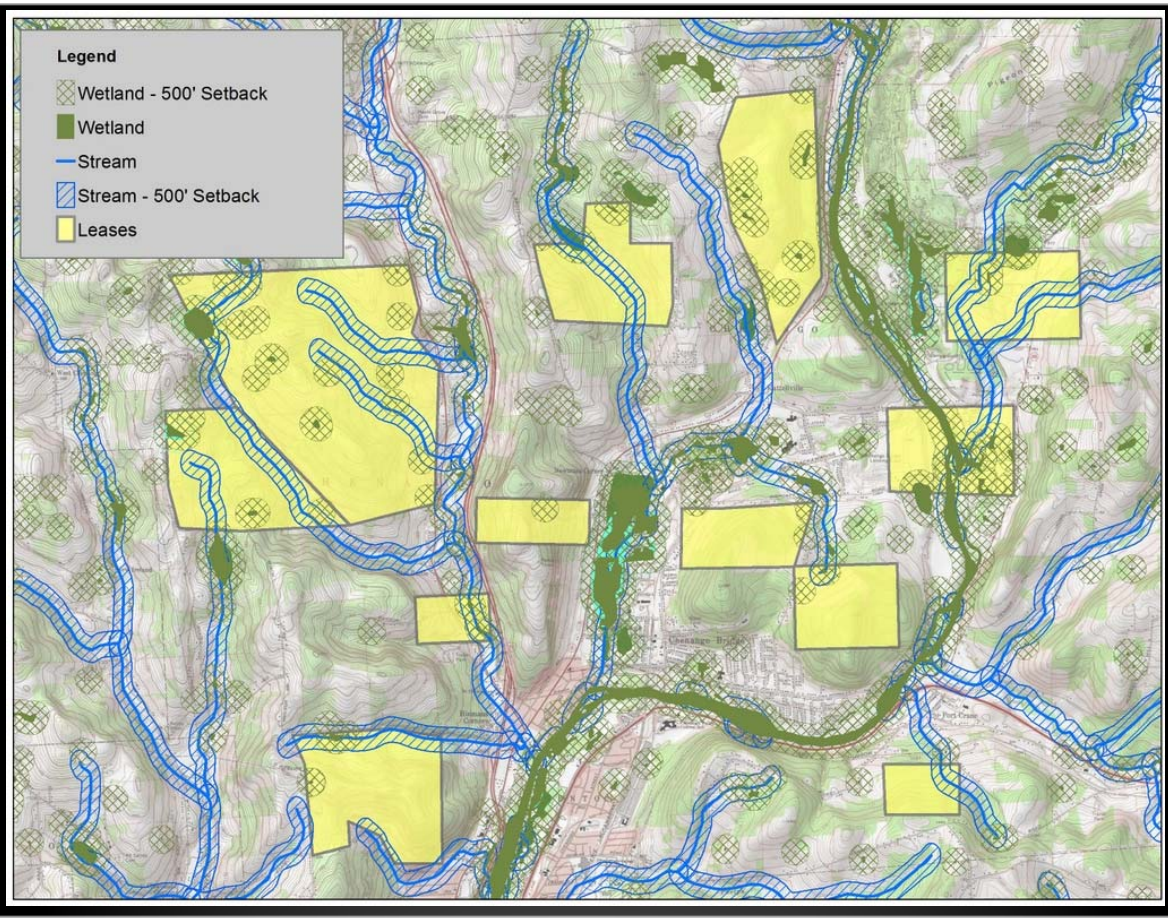
SGEIS well pad placement encumbrances

State forests, parks, & wildlife management areas

EQUIPMENT	PROTECTED FEATURE	SETBACK DISTANCE
fueling tank	stream, wetland, storm drain, lake, pond	500 ft
flowback tanks, additive containers	private well	100 ft
uncovered pits, impoundments	private well	300 ft
handling, mixing of HF additives	private well	150 ft

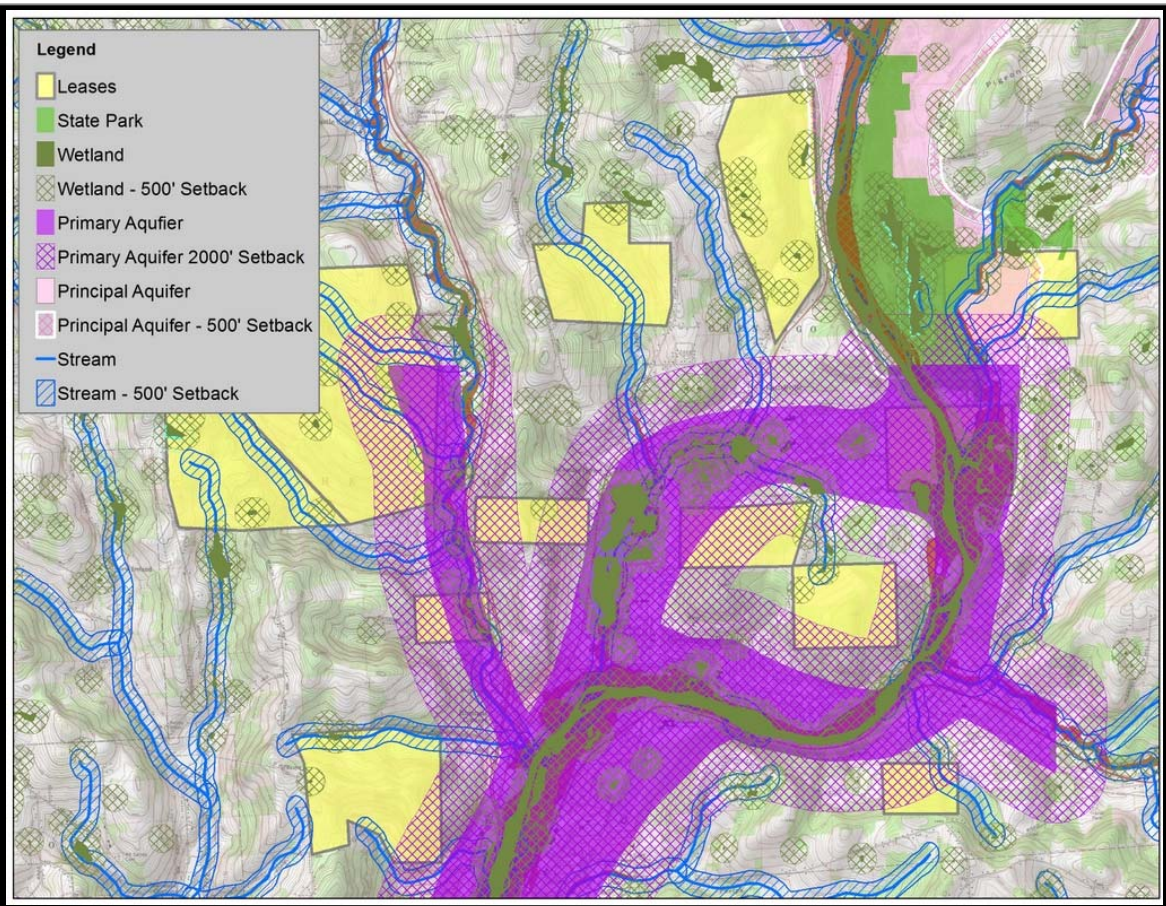
dSGEIS – operational requirements

equipment setbacks



SGEIS well pad placement encumbrances

Fueling tank setback from streams, wetlands – 500 ft.



SGEIS well pad placement encumbrances

Composite prohibitions

PROTECTED FEATURE	SETBACK DISTANCE
public water supply well	2000 ft
water supply reservoirs	2000 ft
natural lake or man-made impoundments	2000 ft
river or stream intake †	2000 ft
private well or spring	500 ft

† provision subject to re-evaluation after 3 years of issuing permits

dSGEIS - prohibitions

well pad siting

PROTECTED FEATURE	SETBACK DISTANCE
principal aquifer*	500 ft
tributary to Public Water Supply	500 ft
perennial or intermittent stream	150 ft
storm drain	150 ft
lake or pond	150 ft

* subject to re-evaluation after 2 years of permitting

dSGEIS - additional environmental review

well pad siting

BMPs required for well pads on Grassland >30 acres, Forest >150 acres

- pre-development surveys of flora and fauna

- maintain “soft” edges around forest, maintain shrub growth

- limit one mowing per year (prohibited 4/23-8/15)*

-Use dust minimizing equipment 4/23-8/15*

- drilling prohibited 4/23-8/15*

- Reclamation of non-productive, plugged, or abandoned well pads

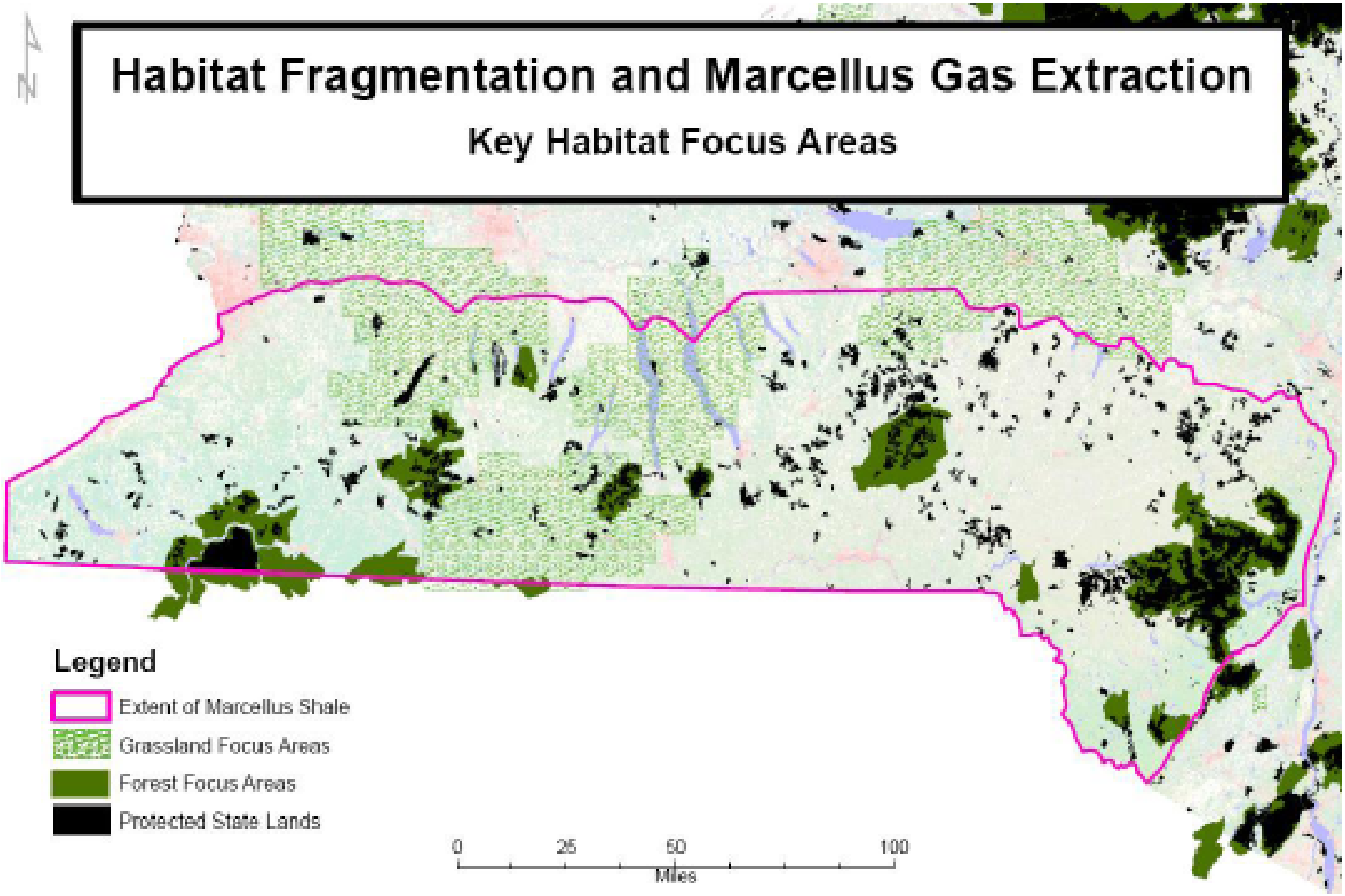
* Grassland Focus Areas only

dSGEIS - operational requirements

Forest Focus Areas & Grassland Focus Areas

Habitat Fragmentation and Marcellus Gas Extraction

Key Habitat Focus Areas



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LATERAL WELL BORE	UPPER FEATURE	SEPARATION DEPTH
top of fracture zone	freshwater aquifer	1000 ft
top of fracture zone	ground surface	2000 ft

dSGEIS - operational requirements

vertical separation distances

private wells within 1000 ft of well pad (2000 ft if no wells available)

baseline sampling prior to site disturbance

prior to drilling each well on a pad

3 months after reaching total measured depth (TMD

3 months, 6 months, and 1 year after hydraulic fracturing operations

- where activity at pad is continuous, at 3-month intervals until
  1 year after last well on pad is fractured.

dSGEIS - operational requirements

private well sampling

4 well maximum per pad per 12-month period

no simultaneous drilling and completion operations at a single pad

during flowback, max venting of 5 MMscf over 12-mo. period

during flowback, max flaring of 120 MMscf over 12-mo. period

dSGEIS - operational requirements

air impact mitigation

no use of uncertified (EPA Tier 0) engines on well pad

drilling engines and air compressors limited to Tier 2 or newer

use of EPA Tier 2 or newer diesel engines

Reduced Emission Completion (REC) – sales line in place

leak detection and repair program

dSGEIS - operational requirements

air impact mitigation

pressure test all HF piping with freshwater

required use of “green” chemicals unless shown ineffective

intermediate well casing required

2 vacuum trucks on standby during HF

well drilling/completion report submitted to DEC w/in 30 days

dSGEIS - operational requirements

Cont.

secondary containment, spill prevention, and SWPP required

HVHF-specific Stormwater General Permit to be developed

oil and gas database search to identify all wells within 1 mile

electronic submission of ERP 48 hours prior to spud

dSGEIS – well permit requirements

planning & documentation

open impoundments for flowback prohibited

DEC-approved disposal plans for flowback and produced water

drilling & production waste tracking process similar to medical waste

treatment facilities:
- wastewater analysis
- treatment capacity analysis
- contingency plan for POTW

SGEIS – permit requirements

wastewater management

affirmation of consistency with local planning/zoning

road use & maintenance agreement & trucking plan required

DEC may impose limitations on simultaneous drilling activity

DEC may impose windows on construction activity

dSGEIS – well permit requirements

community considerations

applicant must disclose all fracturing fluid products and combinations to DEC

applicant must publicly disclose all fracturing fluid components to public

SGEIS – permit requirements

chemical disclosure

definition of terms required:

- floodplains
- public water system intakes
- private wells
- Grassland & Forest Focus Areas
- tributaries to public water supplies

?

dSGEIS – impact uncertain

ambiguities, definitions, information gaps

protected features not necessarily mapped:

Forest & Grassland Focus Areas

public water supplies,

private wells

wetlands, streams, floodplains

?

dSGEIS – impact uncertain

ambiguities, definitions, information gaps

well pad site selection will be more complex

drilling programs will be subject to time and siting constraints

economic viability may be in question ? ? ? ? ?? ? ? ? ? ?

uncertain sunset provisions
uncertain site-specific environmental reviews
uncertain timeframe for well permitting to begin
DEC water withdrawal regs may overlap w/ others

dSGEIS – is proposed framework workable?
ambiguities, definitions, information gaps

6NYCRR Part 52

6NYCRR Parts 550-556 and 560

6 NYCRR Parts 750.1 and 750.3

SPDES General Permit for stormwater discharges

dSGEIS – proposed rulemaking

simultaneous review with proposed dSGEIS

"If the 20th century was the era of environmental brawn,

the 21st century has to be the era of environmental brains."

- John Cronin

Beacon Institute, 2010

2012 and beyond

shifting environmental priorities, e.g, energy, climate, geopolitics

old tactics counterproductive

can environmentalists ally with industry?

new era

new approach

thank you!
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