Presentation to the Alaska Board of Fisheries

December 5, 2009

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Division of Water
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DEC Policy Statement

To conserve, improve, and protect its natural resources and environment and control water, land, and air pollution, in order to enhance the health, safety, and welfare of the people of the state and their overall economic and social well being

Regulatory Divisions of DEC

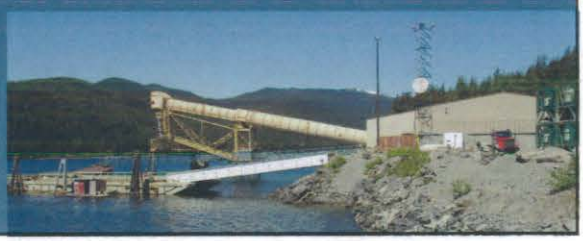
- Environmental Health
- Air Quality
- Spill Prevention and Response
- Water

Division of Environmental Health

- Solid Waste Program
  - Integrated Solid Waste Management Permit (e.g. tailings or waste rock)
- Drinking Water Program
  - Public Drinking Water Systems (e.g. domestic water)
- Food Safety Program
  - Regulates food preparation (e.g. camp dining facilities)

Division of Air Quality

- Air Permitting
  - Construction: New source permit.
  - Operation: Establishes monitoring and reporting terms after construction phase is completed.
- Permit typically covers:
  - Emission sources such as power plants
  - Fugitive dust from ore, tailings, and waste rock
  - Road dust within mine area and road corridors
  - Mill related emissions



Division of Spill Prevention and Response

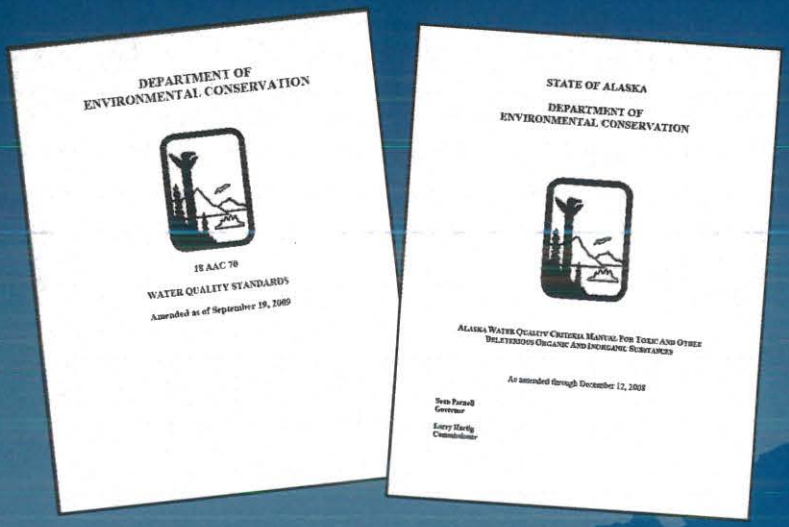
- Industry Preparedness Program
  - Oil Discharge Prevention and Contingency Plan
- Contaminated Sites Program
  - Oversight of cleanup activities
  - Risk Assessments (uncommon)

Division of Water

- Wastewater Discharge Authorization Program
  - CWA Section 401 Certification
  - Integrated Waste Management Permit
  - Storm Water Permit(s)
  - Domestic Wastewater Disposal System Approval
- Alaska Pollutant Discharge Elimination System (APDES) Program
  - Effective October 31, 2010.
  - State assumes NPDES permitting authority
  - Implementation
- Compliance Program
  - Inspections
  - Compliance Verification
  - Enforcement
- Water Quality Standards Program
  - Division WQ Standards Development
  - Guidance Development

Water Quality Standards

Recently Updated Water Quality Standards and "Toxics Manual"



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Classification of Waters (Protected Uses)

18 AAC 70.020.

- (1) **FRESH WATER**
  - (A) **water supply**
    - (i) drinking, culinary, and food processing;
    - (ii) agriculture, including irrigation and stock watering;
    - (iii) aquaculture;
    - (iv) industrial;
  - (B) **water recreation**
    - (i) contact recreation;
    - (ii) secondary recreation;
  - (C) **growth and propagation of fish, shellfish, other aquatic life, and wildlife**; and
- (2) **MARINE WATER**
  - (A) **water supply**
    - (i) aquaculture;
    - (ii) seafood processing;
    - (iii) industrial;
  - (B) **water recreation**
    - (i) contact recreation;
    - (ii) secondary recreation;
  - (C) **growth and propagation of fish, shellfish, other aquatic life, and wildlife**; and
  - (D) **harvesting for consumption of raw mollusks or other raw aquatic life.**

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Protected Uses and Water Quality Standards

- Most stringent water quality standard or criteria applies.
- All water in the State is protected for all uses of that water type (18 AAC 70.050), except:
  - Reclassified Waters listed in 18 AAC 70.230(e).
  - Site Specific Criteria – Department authorized reduction in water quality standard of a protected use category for a specific water body.
  - Waters with Site Specific Criteria are listed in 18 AAC 70.236(b).

Water Quality Standards for Designated Uses 18 AAC 70.020(b)

- Color
- Fecal Coliform bacteria
- Dissolved Gasses
- Dissolved Inorganics (TDS)
- Petroleum Hydrocarbons
- pH
- Radioactivity
- Residues (floating solids and sludge)
- Sediment (settable solids)
- Toxics (manual adopted by reference)
- Turbidity

Register 191, October 2009 ENVIRONMENTAL CONSERVATION

Water Quality Standards for Designated Uses	
(A) Water Supply (i) drinking, culinary, and food processing	May not exceed 5 nephelometric turbidity units (NTU) above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	May not cause detrimental effects on indicated use.
(A) Water Supply (iii) aquaculture	May not exceed 25 NTU above natural conditions. For all lake waters, may not exceed 5 NTU above natural conditions.
(A) Water Supply (iv) industrial	May not cause detrimental effects on established water supply treatment levels.
(B) Water Recreation (i) contact recreation	May not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU. May not exceed 5 NTU above natural turbidity for all lake waters.
(B) Water Recreation (ii) secondary recreation	May not exceed 10 NTU above natural conditions when natural turbidity is 50 NTU or less, and may not have more than 20% increase in turbidity when the natural turbidity is greater than 50 NTU, not to exceed a maximum increase of 15 NTU. For all lake waters, turbidity may not exceed 5 NTU above natural turbidity.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (12)(A)(iii).

Water Quality Standards for Toxics

WATER QUALITY CRITERIA FOR TOXICS AND OTHER DELETERIOUS SUBSTANCES (µg/l unless shown otherwise)

Pollutant CAS Number	Type of Pollutant	Drinking Water [2]	Stock-water [3]	Irrigation Water [4]	Aquatic Life for Fresh Water		Aquatic Life for Marine Water		Human Health for Consumption of:		References [6]
					Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)	Water + Aquatic Organisms	Aquatic Organisms Only	
Antimony 7440360	INORG	6	—	—	—	—	—	—	14	4,300	Drinking Water: 18 AAC 80.300(b) Human Health: 57 FR 60848 60 FR 22228 61 FR 33482 EPA 440-5-80-020 EPA 822-Z-99-001
Arsenic 7440382	INORG	10 [17]	50	100	340 (1-hr avg) [11] dissolved [10, 19, 20]	150 (4-day avg) [12] dissolved [19, 20, 21]	69 See Appendix B (1-hr avg) [14] dissolved [20, 21, 41]	36 See Appendix B (4-day avg) [15] dissolved [20, 21, 41]	—	—	Drinking Water: 18 AAC 80.300(b) 40 FR 6976 60 FR 24701 Stockwater: EPA Green Book Irrigation: EPA Blue Book Aquatic Life: 57 FR 60848 60 FR 22228 61 FR 33482 67 FR 79091 EPA 440-5-84-033 EPA 820-B-96-001 EPA 822-Z-99-001 EPA NRWQC 2006 Human Health: 68 FR 35140
Asbestos		7 million fibers/									Drinking Water:

State Wastewater Discharge Permits

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State vs. Federal Discharge Permits (Mine Facilities)

- Discharge to Surface Water -> Federal Permit (Before 10-31-2010)
  - Federal NPDES permit typically required by EPA
  - State certifies that the NPDES permit meets State WQS
  - Integrated Waste Management Permit
  - Designed to discharge to the environment
  - Direct hydraulic connection to surface water
  - Usually incorporates treatment prior to discharge
  - Mixing zone in receiving water typically necessary
- Discharge to Surface Water -> State Permit (After 10-31-2010)
  - Alaska Pollutant Discharge Elimination System (APDES) required by State in place of NPDES permit.
  - Integrated Waste Management Permit
- "Zero Discharge" to Surface Water -> State Permit
  - Integrated Waste Management Permit
  - Facility is designed to contain all water
  - No or "zero" discharge to environment
  - No direct hydraulic connection to surface water

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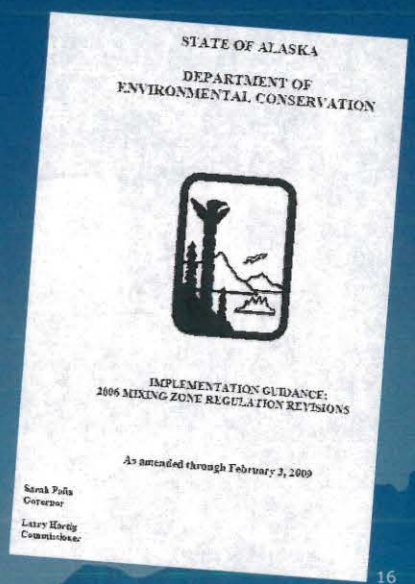
Mixing Zones

- Defined in Water Quality Standard Regs 18 AAC 70.990(38).
- Are part of most permitted discharges to surface water.
- Required to be as "small as Practicable" 70.240(k)
- Can apply to both domestic and industrial discharges.
- May not preclude or limit existing uses of the water body.
- Not authorized in a spawning area for anadromous salmon and other specified fish resources.


STATE OF ALASKA

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

IMPLEMENTATION GUIDANCE: 2006 MIXING ZONE REGULATION REVISIONS

As amended through February 3, 2009

Sarah Palin
Governor

Larry Hartig
Commissioner

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Example Water Monitoring Required in ADEC Large Mine Permit

- Groundwater and surface water monitoring to ensure that facility is operating as no-discharge (chemical and physical)
- Process water monitoring
- Tailings solids monitoring
- Waste rock monitoring
- Biological monitoring
- Upstream and downstream water monitoring

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ADEC Integrated Waste Management Permit

- Integrates
  - 18 AAC 60 – Solid Waste Management
  - 18 AAC 70 – Water Quality Standards
  - 18 AAC 72 – Wastewater Disposal
- Typical Wastes Managed
  - Tailings
  - Waste Rock
  - Garbage/Sewage sludge
- Potential Contaminants Controlled
  - Acid Rock Drainage/Metals Leaching
  - Process Chemicals
- Primary Focus of Protection
  - Surface Water
  - Groundwater

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Integrated Waste Management Permit

- Reviews applications
  - Plan of Operations
  - Monitoring Plan
  - Baseline Data Collection Plan
  - Reclamation and Closure Plan
  - Financial Assurance (bonding)
  - Wastewater Plan Reviews
  - Storm Water Pollution Prevention Plan (SWPPP)
  - Waste Characterization and Handling Plan
  - Design and Construction Documents
  - Hydrology, Geochemistry Analysis, Mass Load Modeling, etc.

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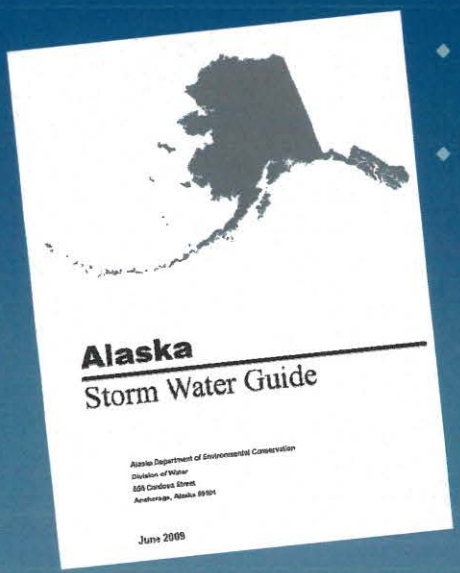
Storm Water Discharge Permits



- Storm Water Pollution Prevention Plan (SWPPP) Reviews
- Storm Water General Permits
  - Construction General Permit (CGP): Construction General Permit for Discharges from Construction Activities
  - Multi-Sector General Permit (MSGP): Authorizes certain industrial discharges with specific requirements and limitations

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ADEC Role in the Large Mine Permitting

- National Environmental Policy Act (NEPA) process as applicable;
- Conducts public meetings and public hearings;
- Reviews baseline data collection plans;
- Inter-agency review of mine planning documents such as:
  - Monitoring Plan
  - Reclamation and Closure Plan
  - Plan of Operations
- Issues environmental permits for large mines;
- Approves in financial responsibility/financial assurance evaluations.

Contact Information

- Division of Water, Wastewater Discharge Program
  - Sharmon Stambaugh, Water Quality Programs, 907 269-7565
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  - Food Safety and Sanitation – Ron Klein, Program Manager, 907 269-7501
- Division of Air Quality
  - Air Permits Program - John Kuterbach, Program Manager, 907 465 5103