Ecology’s Commitment

Ecology is committed to supporting concrete recycling that is done in a manner that is protective of the environment and water quality.
Permittees Status

- 929 Sand & Gravel facilities across Washington State
Permittees Status

71 Sand & Gravel Facilities have the NAICS Code 327999
(All Other Miscellaneous Nonmetallic Mineral Product Manufacturing)

Percentage of Concrete Recycling Facilities

- Permitees Other than 327999: 7%
- Northwest
- Southwest
- Central
- Eastern
Permittees Status

• 91% discharge to ground

![Pie chart showing discharge status]

- 63% Discharge to Ground Only
- 28% Discharge to Ground & Surface
- 9% Discharge to Surface Only
Permittees Status

- 28 numeric violations
- 6.1 - 11.5 pH values reported on DMRs

Reported pH Values

Sampling Date (or Monitoring Period End Date)

- 8/10/2010
- 2/26/2011
- 9/14/2011
- 4/1/2012
- 10/18/2012
- 5/6/2013
- 11/22/2013
- 6/10/2014
- 12/27/2014
- 7/15/2015

pH Values Corresponding to Code 327999

- Min (6.5)
- Max (8.5)
Permittees Status

• 54 (76%) are located near a surface waterbody

• 22 (31%) are located in a wellhead protection zone
Industry Status

- Demolition of concrete pavements and structures is the major source of concrete for recycling
- 1,007,851 tons of concrete waste generated by Washingtonians in 2012
- 87.7%, or 883,799 tons of waste concrete was diverted for recycling

C&D Materials Diverted
C&D Materials Disposed

Tons
2015 New Recycling Law

• Established reuse & recycling of construction aggregate and recycled concrete materials as a priority
• WSDOT must use a minimum of 25% on its infrastructure projects
• Local governments must take into account recycled concrete percentages when awarding bids
Presentation Agenda

- Introduction
- Current Status
- Benefits & Uses
- Water Quality Concerns
- Current Permit Approach
- Preliminary Draft Permit Language
- Questions & Discussion
Benefits & Uses
Benefits

• Decreases landfill waste
• Reuses valuable aggregate
• Conserves new aggregate
• Reduces green house gas emissions
  – The 3.7 million tons of C&D debris diverted from landfills prevented over 200,000 tons of green house gas emissions
• Reduces illegal dumping
Uses

- Reuse in new portland cement concrete (PCC)
- Most studies recommend 30% replacement within concrete mixes (some state agencies allow 100%)
Uses

• There are many possible uses for recycled concrete aggregates
• Common uses include:
  – Backfill
  – Base Course
  – Subbase
  – Ballast
• Any place you normally use aggregate is a potential opportunity
<table>
<thead>
<tr>
<th></th>
<th>Hot Mix Asphalt</th>
<th>Concrete Rubble</th>
<th>Recycled Glass</th>
<th>Steel Furnace Slag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Aggregate for Portland Cement Concrete</td>
<td>9-03.1(2)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Coarse Aggregates for Portland Cement Concrete</td>
<td>9-03.1(4)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Aggregates for Hot Mix Asphalt</td>
<td>See 5-04.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ballast</td>
<td>9-03.9(1)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Permeable Ballast</td>
<td>9-03.9(2)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Crushed Surfacing</td>
<td>9-03.9(3)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Aggregate for Gravel Base</td>
<td>9-03.10</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Backfill for Foundations – Class A</td>
<td>9-03.12(1A)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Backfill for Foundations – Class B</td>
<td>9-03.12(1B)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Backfill for Walls</td>
<td>9-03.12(2)</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Backfill for Pipe Zone Bedding</td>
<td>9-03.12(3)</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Backfill for Drains</td>
<td>9-03.12(4)</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Backfill for Drywells</td>
<td>9-03.12(5)</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Backfill for Sand Drains</td>
<td>9-03.13</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Sand Drainage Blanket</td>
<td>9-03.13(1)</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Gravel Borrow</td>
<td>9-03.14(1)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Select Borrow</td>
<td>9-03.14(2)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Select Borrow (greater than 3 feet below Subgrade and side slopes)</td>
<td>9-03.14(2)</td>
<td>100</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Common Borrow</td>
<td>9-03.14(3)</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Common Borrow (greater than 3 feet below Subgrade and side slopes)</td>
<td>9-03.14(3)</td>
<td>100</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Foundation Material Class A and Class B</td>
<td>9-03.17</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Foundation Material Class C</td>
<td>9-03.18</td>
<td>0</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Bank Run Gravel for Trench Backfill</td>
<td>9-03.19</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
</tbody>
</table>
Presentation Agenda

- Introduction
- Current Status
- Benefits & Uses
- Water Quality Concerns
  - Concrete Recycling Stockpiles
- Current Permit Approach
- Preliminary Draft Permit Language
- Questions & Discussion
Water Quality Concerns
Water Quality Concerns

- Crushing or fracturing hardened concrete exposes unreacted quicklime or cement
- When water contacts the unreacted quicklime or cement chemical reactions occur that result in high pH
- Stormwater, erosion, and movement within the stockpile can continuously expose new potential reaction sites
Alkaline pH Scale

Increasing Acidity

Surface & Ground Water Quality Standards

L&I Corrosive

DMRs from 327999 Sand & Gravel Permittees

University of Wisconsin Recycled Concrete Stockpile Leaching Study

Increasing Alkalinity

Dangerous Waste
Water Quality Standards

• Process water and runoff from Concrete Recycling Stockpiles has the potential to:
  – Exceed the criteria of Chapter 173-200 WAC, Water Quality Standards for Ground Waters of the State of Washington
  – Exceed the fresh and marine criteria of Chapter 173-201A WAC, Water Quality Standards for Surface Waters of the State of Washington
Water Quality Concerns

CONCRETE RECYCLING

STOCKPILES
Concrete Recycling Stockpiles

• Stockpiles are big:
  – 7 acres of crushed concrete
  – Millions of tons
• Stockpiles contain both fines and monolithic blocks
• Stockpiles can sit for years
Concrete Recycling Stockpiles

Construction
- Stockpiles limited in size
- Short time periods
- Use once and done
- Transient sites
- Easier to prevent exposure

Sand & Gravel
- Huge Stockpiles
- Piles can sit for years
- Constant addition & subtraction of material
- One location
- Massive size limits BMPs & treatment options
Stockpiles Located in Wellhead Protection Zones

• A wellhead protection zone is the surface & subsurface area surrounding a well that contaminants are likely to pass through

• Time-of-travel criteria defines the primary zones of wellhead protection
Stockpiles Located in Wellhead Protection Zones

- WAC 173-200-090
  - Wellhead protection areas may be classified as “Special Protection Areas”
- WAC 246-290-130 and 246-290-135 set requirements for wellhead protection areas
- Pollution prevention is the state’s preferred approach to groundwater protection
Stockpiles Located in Wellhead Protection Zones
Stockpiles Located Near Surface Water Bodies
Water Quality Concerns

- Protect aquatic life
- pH determines the solubility and biological availability of metals and other contaminants
  - Arsenic
  - Selenium
- Clogging of drainage systems
Water Quality Concerns

• Protect domestic water supply sources
  – Affects to collection & treatment systems
  – More costly and difficult to treat drinking water with a high pH
Current Permit Approach
Current Permit

• Monthly monitoring
• Effluent limits are for both stormwater and process water
• Effluent limits for both surface and ground
• pH effluent limit of 6.5 – 8.5
• Permittees can monitor in puddles and infiltration ponds
Point of Compliance

• Permittees can monitor in puddles and infiltration ponds or in groundwater monitoring wells.

• Water ponding at a facility can be considered a discharge to groundwater.

• WAC 173-200-060 establishes the point of compliance within the groundwater.
Point of Compliance Concerns

- Between the puddle on the ground and the groundwater table the soil can buffer high pH runoff
Point of Compliance Concerns

- Buffering is site specific & dependent on:
  - Geochemistry
  - Distance between the bottom of the stockpile and the groundwater table
  - Characteristics of the runoff
  - Hydrogeology (presence of compacted soils, till, and hardrock)
Current Permit

- Monthly monitoring
- Effluent limits are for both stormwater and process water
- Effluent limits for both surface and ground
- pH effluent limit of 6.5 – 8.5
- Permittees can monitor in puddles and infiltration ponds
Current Permit

• Monthly monitoring
• Effluent limits are for both stormwater and process water
• Effluent limits for both surface and ground
• pH effluent limit of 6.5
• Permittees can monitor in puddles and infiltration ponds
Preliminary Draft Permit Language
Preliminary Draft Permit Language

- Pollution Prevention Schedule
- New BMPs
- Concrete Recycling Definition
Preliminary Draft Permit Language

• Defined response in the rare case that permittees have a concrete recycling wastewater discharge that has a pH higher than 8.5
  – Keeps permittees in compliance
  – Establish consistency across the state
  – Sets expectations
  – Takes specific site conditions into account
  – Provides flexibility
Preliminary Draft Permit Language

• Focus on discharges to ground
• Less concerned about discharges to surface
  – Water is collected and treated prior to discharge
  – Fewer facilities discharge to surface waters
  – Washington surface waters resist pH changes (are well buffered)
Preliminary Draft Permit Language

• New BMPs for placing of concrete recycled stockpiles
  – Protects surface water
  – Protects drinking water

• New BMP for materials acceptance
  – Reduces permittees liability
  – Limits risks associated with dangerous waste

• Omissions & substitutions allowed with rationale
New Definition

• Focuses on the activity not the material
• Focuses on hardened instead of cured
  – Curing times are different for different products
  – Curing is an ongoing process without a defined end point
• Focuses on structural concrete
  – Best source for recycling
  – Less risk for other contaminants
Preliminary Draft Permit Language

- Concrete Recycling Definition
- Code Classification
- Pollution Prevention Schedule
- New BMPs
New Definition

Concrete Recycling means the processing (including, but not limited to, crushing, fracturing, sorting, storing, stockpiling, grading, and washing) of hardened structural concrete to produce a reusable concrete product.
New Definition

• Concrete Recycling:
  – Demolished structures
  – Demolished roads
  – Comeback concrete after it has been ribboned out and has hardened

• Not Concrete Recycling
  – Comeback concrete
  – Drilling slurries
  – Unhardened Construction Washout Containers
  – Concrete truck washout
Preliminary Draft Permit Language

Concrete Recycling Definition

Code Classification

Pollution Prevention Schedule

New BMPs
New Code ECY002

- Concrete recycling currently included under NAICS 327999
- Ecology proposes to add a new code (ECY002) specifically for concrete recycling
  - Separating these codes allows Ecology to calculate fees easier
    - Fees for recycled concrete are less than for ready-mix concrete
New Code ECY002

• NAICS doesn’t have a specific code for concrete recycling
  – Purpose of NAICS is to collect and analyze U.S. business economy data, not for establishing environmental requirements
  – NAICS classifies recycling by the products that they become
  – There isn’t a single code that is a good fit
New Code ECY002

• Allows gathering of compliance data
  – Shows consistent compliance of industry
  – Helps inform future permit decisions

• Focus on a specific industry segment instead of all concrete related NAICS codes
  – Risk of high pH runoff higher for concrete recycling than for ready-mix
  – Establish requirements only for the applicable industry segment
# Process Water Effluent Limits

## S2. EFFLUENT LIMITS

### Table 1: Effluent Limits and Monitoring Requirements for Process Water and Mine Dewatering Water

<table>
<thead>
<tr>
<th>Type</th>
<th>NAICS Code (see Appendix A)</th>
<th>Discharge to:</th>
<th>pH</th>
<th>Turbidity (NTU)</th>
<th>Total Suspended Solids (TSS)</th>
<th>Oil Sheen</th>
<th>Discharge Flow (gpm)</th>
<th>Total Dissolved Solids (TDS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Water, Mine</td>
<td>327320, 327331, 327332,</td>
<td>Surface</td>
<td>One/Month</td>
<td>Two/Month²</td>
<td>Quarterly¹</td>
<td>Daily</td>
<td>see S12.A.6 and</td>
<td></td>
</tr>
<tr>
<td>Dewatering Water</td>
<td>327380, 327969, ECY002</td>
<td></td>
<td>6.5</td>
<td>8.5</td>
<td>50</td>
<td>50</td>
<td>S12.A.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40 mg/l</td>
<td>Visible Sheen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ground</td>
<td>One/Month</td>
<td>----</td>
<td>----</td>
<td>Daily</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.5</td>
<td>8.5</td>
<td>----</td>
<td>500 mg/l</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes for Tables 2 and 3:

1. Quarterly means at least one sample in each of the periods of January to March, April to June, July to September, and October to December.

2. When required to sample turbidity twice a month, there must be at least 24 hours between sampling.

3. The discharge of sheen or petroleum products to waters of the state is a violation and must be reported as a violation. The presence of a visible sheen on site is not a violation if the Permittee corrects the problem in a timely manner, notes the occurrence in their Discharge Monitoring Report (DMR), and explains in the DMR the cause and describes the solution. (Also see conditions S4.F.4, S5.C, S9.C and S10.E.)

4. Permits that have groundwater discharges associated with code ECY002 that exceed 8.5 must comply with the pollution prevention schedule in Appendix C.
Examples of Process Water Discharges

- Washing concrete recycling aggregate to remove fines
- Wetting concrete recycling stockpiles to retain moisture content & improve workability
# Stormwater Effluent Limits

## Table 2: Effluent Limits and Monitoring Requirements for Type 2 and Type 3 Stormwater

<table>
<thead>
<tr>
<th>Type</th>
<th>NAICS Code (see Appendix A)</th>
<th>Discharge to:</th>
<th>pH</th>
<th>Turbidity (NTU)</th>
<th>Oil Sheen</th>
<th>Discharge Flow (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Average Monthly</td>
<td>Maximum Daily</td>
</tr>
<tr>
<td>Stormwater (Type 2 &amp; 3) monitoring only applicable during earth moving activities</td>
<td>327320, 327331, 327332, 327390, 327999, ECY002</td>
<td>Surface</td>
<td>One/Month</td>
<td>Two/Month²</td>
<td>Daily when runoff occurs</td>
<td>No Discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.5</td>
<td>8.5</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>One/Month</td>
<td></td>
<td>Daily when runoff occurs</td>
<td>No Discharge²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.5</td>
<td>8.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>One/Month</td>
<td></td>
<td>Daily when runoff occurs</td>
<td>No Discharge³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.5</td>
<td>8.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes for Tables 2 and 3 (continued).

3. The discharge of sheen or petroleum products to *waters of the state* is a violation and must be reported as a violation. The presence of a visible sheen on site is not a violation if the Permittee corrects the problem in a timely manner, notes the occurrence in their Discharge Monitoring Report (DMR), and explains in the DMR the cause and describes the solution. (Also see conditions S4.4.1, S5.3, S9.3, and S10.9.)

4. Permittees that have groundwater discharges associated with code ECY002 that exceed 8.5 must comply with the pollution prevention schedule in Appendix C.
Preliminary Draft Permit Language

Concrete Recycling Definition

Code Classification

Pollution Prevention Schedule

New BMPs
Pollution Prevention Schedule

• Added a new pollution prevention schedule in Appendix C
• Similar to the one in the 2005 – 2010 permit for Total Dissolved Solids (TDS)
• Requirements for facilities (ECY002) that exceed a pH of 8.5 in any discharge to ground
Pollution Prevention Schedule for Concrete Recycling

Sample > 8.5 pH

Resample within 10 days

Sample < 8.5 pH, resume normal monthly sampling frequency

Notify Ecology within five days

Within 80 days determine and implement appropriate pollution prevention opportunities

10 days + 80 days = 90 days
Pollution Prevention Opportunities

• Grade stockpiles and collect and treat the water from stockpiles of fines and piles < 5/8” less
• Sweep to collect fines
• Limit size of piles (remove material, sell material, or limit adding materials)
• Implement other BMPs
Pollution Prevention Schedule for Concrete Recycling

- Sample > 8.5 pH
  - Resample within 10 days
  - Sample > 8.5 pH
    - Notify Ecology within five days
    - Within 80 days determine and implement appropriate pollution prevention opportunities

- Sample < 8.5 pH
  - Resume normal monthly sampling frequency
  - Sample < 8.5 pH, resume normal monthly sampling frequency

10 days + 80 days = 90 days
Pollution Prevention Schedule for Concrete Recycling

If the resampling within 90 days exceeds 8.5, implement one of the following within 180 days:

1. Submit to Ecology documentation that the hydrogeology of the site prevents exceedance of the groundwater quality standards.

2. Implement a program with an Ecology approved schedule to provide treatment for the pH prior to discharge to ground.

3. Conduct an Ecology-approved groundwater impact study:
   - Per WAC 173-200-080
   - Per chapters 4-6 in the *Implementation Guidance for the Groundwater Quality Standards* (Ecology Publication 96-02)
   - Submit results to Ecology 30 days after completion of the study.

4. Cease discharges to ground related to the recycled concrete.
Pollution Prevention Schedule for Concrete Recycling

1. Submit to Ecology for review and approval documentation that the hydrogeology of the site prevents exceedance of the groundwater quality standards
   - Thick till
   - Hard rock
   - Compacted soils
   - A hydraulic restrictive layer
Pollution Prevention Schedule for Concrete Recycling

• 2. Implement a program with an Ecology approved schedule to provide treatment for the pH prior to discharge to ground
  – Capital Improvement Program
  – Impervious surface
  – Conveyance system
  – CO\textsubscript{2} sparging system
Pollution Prevention Schedule for Concrete Recycling

• 3. Conduct an Ecology-approved groundwater impact study
  – Includes geotechnical and monitoring component
  – Installation of groundwater monitoring wells
  – Chapters 4-6 in the *Implementation Guidance for the Groundwater Quality Standards*
  – Submit results to Ecology 30 days after completion of the study
Pollution Prevention Schedule for Concrete Recycling

• 4. Cease discharges to ground related to the recycled concrete
  – Remove concrete recycling material from the site
  – Install an impervious surface, collect and treat the wastewater
**Pollution Prevention Schedule**

### Pollution Prevention Schedule Timeline

- **Initial high pH sample:** 10 days
- **High pH Resample:** 80 days
- **High pH Resample:** 180 days
- **90 days (Implement pollution prevention opportunities):**
  - Provide documentation, or implement a treatment program, or conduct a groundwater impact study, or cease discharges

- **30 days**

- **Submit Study Results to Ecology**

- **Continue Monthly Monitoring**
## Benefits of Pollution Prevention Schedule

<table>
<thead>
<tr>
<th>Defined response after 3 exceedances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishes consistency</td>
</tr>
<tr>
<td>Takes into account specific site conditions</td>
</tr>
<tr>
<td>Provides flexibility</td>
</tr>
</tbody>
</table>
Preliminary Draft Permit
Language

Concrete Recycling Definition

Code Classification

Pollution Prevention Schedule

New BMPs
New SWPPP Section

- Added a new subsection of the SWPPP Section in the Permit (S5 / S8)
- How much time needed to update SWPPPs? (60 days or more by request)
Stormwater Pollution Prevention Plan BMPs

• Permittees may omit BMPs if site conditions render the BMP unnecessary or if the Permittee provides alternative and equally effective BMP
  – Hydrogeology of the site
  – Impervious surface

• The Permittee must note the rationale for omission or substitution in the SWPPP
Stormwater Pollution Prevention Plan BMPs

- Do not place concrete recycling stockpiles:
  - Within 100 feet or less from the ordinary high water mark of surface water bodies
  - Within 100 feet or less from drinking water and irrigation well(s)
  - Within a Wellhead Protection Area
  - Where there is a discharge to ground and there is not a minimum of 10 feet of separation between the bottom of the recycled concrete stockpile and groundwater
Stormwater Pollution Prevention Plan BMPs

- Place concrete recycling stockpiles at least 100 feet away from the ordinary high water mark of surface water bodies.
Stormwater Pollution Prevention Plan BMPs

• Place concrete recycling stockpiles at least 100 feet away from drinking water and irrigation well(s)
Stormwater Pollution Prevention Plan BMPs

• Place concrete recycling stockpiles outside of Wellhead Protection Areas
Stormwater Pollution Prevention Plan BMPs

If there is a discharge to Ground:

- Place concrete recycling stockpiles:
  - Where there is at least a minimum of 10 feet of separation between the bottom of the recycled concrete stockpile and groundwater.
Stormwater Pollution Prevention Plan BMPs

• What if you have stockpiles in these locations?
  – Is the BMP unnecessary?
    • A hydraulic restrictive layer
    • Conduct a groundwater impact study
  – Provide an equally effective BMP?
    • Impervious surface
    • Covering pile
    • Collecting runoff for treatment
  – Relocate your stockpile or stop the discharge?
Stormwater Pollution Prevention Plan BMPs

- Establish materials acceptance procedures to ensure that inbound recycled concrete materials are not a source of:
  - Dangerous waste
  - Lead paint
  - Asbestos
  - Joint sealants which contain Polychlorinated Biphenyls (PCBs)
Benefits of BMPs

- Protects surface waters
  - Aquatic life
- Protects drinking waters
- Protects irrigation waters
- Limits liability
  - Limits risks associated with dangerous waste
  - Groundwater clean-up
- Provides flexibility
Summary

• Ecology committed to supporting concrete recycling that is done in a manner that is protective of the environment and water quality
• Sand & Gravel facilities have reported pH values between 6.1 - 11.5
• High pH wastewater from concrete recycling can effect water quality and the environment
• The preliminary draft language focuses on when permittees have three pH exceedences for groundwater discharges
• The preliminary draft language:
  – Protects water quality
  – Provides flexibility
Questions and discussion