

1 BEFORE THE POLLUTION CONTROL HEARINGS BOARD
2 STATE OF WASHINGTON

3 COPPER DEVELOPMENT
4 ASSOCIATION, INC., and THE
5 INTERNATIONAL COPPER
6 ASSOCIATION, LTD., OLYMPIANS FOR
7 PUBLIC ACCOUNTABILITY, ARTHUR
8 WEST, PUGET SOUNDKEEPER
9 ALLIANCE, COLUMBIA RIVERKEEPER,
10 THE BOEING COMPANY, and
11 GUNDERSON RAIL SERVICES,

12 Appellants,

13 v.

14 STATE OF WASHINGTON,
15 DEPARTMENT OF ECOLOGY, and the
16 PORT OF OLYMPIA,

17 Respondents,

18 WEYERHAEUSER COMPANY,

19 Intervenor.

PCHB Nos. 09-135 through 09-141

FINDINGS OF FACT, CONCLUSIONS OF
LAW, AND ORDER

20 INTRODUCTION AND PROCEDURAL HISTORY

21 Multiple parties filed appeals of the Industrial Stormwater General Permit (ISGP or
General Permit) issued by the Department of Ecology (Ecology) in October 2009. Attorney
Richard A. Smith represented Appellants Puget Soundkeeper Alliance, Columbia Riverkeeper,
and Olympians For Public Accountability (collectively referred to as PSA). Attorneys James A.
Tupper and Bradford Doll represented Appellant The Boeing Company (Boeing). Attorney Beth
Ginsberg represented Appellant Copper Development Association and the International Copper

Association, Ltd. (collectively referred to as Copper Groups). Assistant Attorney General
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1 Thomas J. Young and Senior Counsel Ronald L. Lavigne represented Respondent Department of
2 Ecology (Ecology). Attorney Carolyn Lake represented Respondent Port of Olympia (Port).
3 Attorney Charles Douthwaite represented Respondent-Intervenor Weyerhaeuser NR Company
4 (Weyerhaeuser). The Board dismissed Appellant Arthur West as a party to this appeal by Order
5 dated February 7, 2011, for failing to appear and participate in any manner at hearing, and failing
6 to comply with aspects of the Pre-Hearing Order.

7 A Pre-Hearing Order dated January 25, 2010, identified seventy-one (71) legal issues
8 which governed the proceedings and controlled the issues before the Board on appeal. The
9 Board entered seven Orders on Summary Judgment addressing many of the legal issues raised by
10 the parties, while requiring others to proceed to hearing.¹ After the completion of motion
11 practice, thirty-one (31) issues remained for hearing. For ease of reference those issues are set
12 out in Appendix A to this decision. The issues remaining for hearing addressed the validity of a
13 number of aspects of the ISGP, and generally include the following: 1) the basic framework of
14 the permit, with its combination of benchmarks and numeric effluent limitations; 2) specific
15 benchmark values, and the methodology to derive them, including those for copper, zinc, oil, and
16 those applicable to the timber and paper products industry; 3) several of the numeric effluent
17 limitations for discharges to 303(d)-listed water bodies, or the omission of such limitations; 4)
18 compliance with antidegradation requirements of state law; 5) monitoring and sampling
19 requirements; 6) adaptive management/corrective action requirements, including the associated

20
21

¹ Boeing filed a motion for reconsideration of one aspect of the Board's January 5, 2011 Order on Summary Judgment (Legal Issues No. 31 and 62). The Board allowed Boeing to present evidence on the disputed issues and addresses the Motion further below.

1 waiver and extension provisions; 7) backsliding prohibitions; 8) standing; and 9) miscellaneous
2 other issues that we conclude have been abandoned.

3 The Board held a hearing in this matter on January 24 through February 3, 2011, at the
4 Board's offices in Tumwater, Washington. Board Member Kathleen D. Mix presided for the
5 Pollution Control Hearings Board, joined by Board Member William H. Lynch and Board Chair
6 Andrea McNamara Doyle. Randi Hamilton and Kim Otis of Gene Barker and Associates,
7 Olympia, Washington provided court-reporting services.

8 The Board received the sworn testimony of witnesses, admitted exhibits, and heard
9 arguments on behalf of the parties. Having fully considered the record, the Board enters the
10 following:

11 FINDINGS OF FACT

12 A. Background to Permit Development

13 [1]

14 Ecology issued the ISGP on October 21, 2009, with an effective period of five years,
15 from January 1, 2010, to January 1, 2015. This version of the General Permit replaces the 2004
16 ISGP, which was re-issued without changes on August 15, 2007, and October 15, 2008. The
17 ISGP is a National Pollutant Discharge Elimination System (NPDES) permit, issued on a
18 statewide basis to regulate stormwater discharges at approximately 1200 industrial facilities that
19 discharge stormwater to surface waters or to a storm sewer system that drains to surface waters.
20 The ISGP, like other general permits, allows Ecology to regulate and administer a single permit
21 for multiple industries that discharge to waters of the State, rather than issuing individual

1 NPDES discharge permits to multiple industrial dischargers.² *ISGP, Fact Sheet; Killelea*
2 *Testimony.*

3 [2]

4 Ecology's decisions on the final terms of the 2010 ISGP were informed by several
5 processes. Consultants Envirovision and Herrera Environmental prepared a 2006 evaluation of
6 possible methods to improve the effectiveness of the ISGP, studying extensive sets of data to
7 examine issues related to monitoring and the use of numeric effluent limitations in the permit. A
8 2008 survey of field inspectors and enforcement staff identified areas where the previous permit
9 had worked well or needed improvement. Ecology also used an internal and external committee
10 process to develop the 2009 ISGP. An internal Ecology team, comprised of inspection and
11 enforcement staff, engineers, and policy managers, developed permit terms. An external
12 committee comprised of environmental and business interests, local government representatives,
13 and others reviewed, commented, and also helped develop the final version of the ISGP. In 2006
14 and 2007 Ecology released draft permits for public comment, but these drafts were highly
15 controversial. Both Ecology and the regulated community had substantial concerns about the
16 cost of implementation. Concerned with the legal defensibility of the permit terms, Ecology
17 continued to refine permit terms. *Exs. B-35, P-6; Killelea Testimony.*

18 [3]

19 As it developed the 2010-2015 iteration of the ISGP, Ecology sought to address several
20 problems it had identified with the prior permitting approach. First, Ecology considered the

21 ² Boeing, PSA, and Ecology each offered the 2010 ISGP and related draft Fact Sheet into evidence, and the Board admitted the same. *Exs. B-1, P-1, E-1, B-3, P-2, E-2.* For ease of reference in this opinion those exhibits will be referred to as the "ISGP," or "Fact Sheet," or reference will be made directly to the relevant permit condition.

1 previous permit to be overly complex, confusing, and long. Second, the corrective action
2 provisions of the previous permit had proved ineffective and difficult to enforce. Finally,
3 Ecology had questions as to whether or not the benchmark values of the previous permit were
4 protective enough of water quality, and also wanted to clarify the requirements that must be
5 included in a facility Stormwater Pollution Prevention Plan (SWPPP), a centerpiece of
6 stormwater management. *Ex. P-6; Killelea Testimony.*

7 [4]

8 Historically, full compliance with all the terms of the ISGP by regulated facilities has
9 been low. In 2009, when Ecology issued the Fact Sheet which accompanied the draft permit, it
10 provided statistics showing varying compliance rates on key permit terms, stating “[F]acility
11 inspections have revealed that many facilities with permit coverage are not in compliance with
12 permit provisions.” Facilities were not submitting discharge monitoring reports (DMRS) (30%
13 not submitting in 2008). While three quarters of facilities could provide their stormwater
14 pollution prevention plan at the time of inspection, forty percent or less of permitted sites had up-
15 to-date, fully implemented SWPPPs. Sixty to seventy percent of facilities could identify one or
16 more best management practices (BMPs) that were maintained to manage stormwater. Ecology
17 concluded that the overly complex and confusing aspects of the previous permit, in addition to its
18 sheer length, made it difficult for permittees to fully comply with its requirements. *Exs. E-6,*
19 *Fact Sheet, p. 36; Kaufman, Stasch Testimony.*

20 [5]

21 Despite this lack of full compliance by the regulated industrial sector, the rate of
compliance with key permit terms has consistently improved over the last five years, in areas

1 such as implementing BMPs and complying with monitoring requirements. Ecology is
2 combining technical assistance with effective enforcement strategies in order to improve permit
3 compliance. Ecology has made a concerted effort to improve the submittal rates for DMRs, with
4 an escalating series of warning letters and “field ticket” enforcement efforts. This latter effort
5 results in a \$3000 penalty where there has been a repeated failure to submit DMRs over three
6 reporting quarters. Despite widespread and substantial budget reductions in state government
7 generally, and at the agency specifically, Ecology is attempting to maintain stormwater
8 inspection and enforcement staff as a high priority. *Moore, Stasch, Kaufman Testimony.*

9 [6]

10 Ecology also developed the framework and specific terms of the 2010 ISGP in
11 recognition of the unique nature of stormwater. In contrast to other wastewater discharges and
12 point sources of pollution, stormwater runoff exhibits highly variable flow rates and flow
13 volumes, a fact this Board has repeatedly recognized in appeals of stormwater general permits.
14 Pollutant concentrations can vary greatly. Stormwater monitoring data reveals far greater
15 variability than other types of pollutant discharges regulated by other NPDES permits.
16 Derivation of effluent limitations or determination of patterns in discharges is made more
17 difficult because of this, and there is a recognized need for large, comprehensive data sets to
18 adequately characterize industrial stormwater discharges, including such characteristics as flow
19 volumes and rates and constituent concentrations. Based on this understanding of the complexity
20 and variability of industrial stormwater discharges, Ecology determined that stormwater
21 discharges from industrial facilities, as a general matter, may cause a violation of water quality

1 standards for a number of pollutant parameters, and the agency developed effluent limitations to
2 address the same. *Fact Sheet, Ex. B-35; Killelea Testimony, Paulsen Testimony.*

3 [7]

4 The federal Environmental Protection Agency (EPA) provides permit coverage for
5 industrial facilities in geographic areas and for classes of discharges that are outside the scope of
6 a state's NPDES program. EPA does this through the current version of the Multi-Sector
7 General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), which is
8 effective from September 2008 through September 2013. *Exs. B-59, E-3.* Ecology both relied
9 on and borrowed from terms and approaches in the MSGP, but the two permits are not identical.
10 EPA commented favorably on many of the terms of Ecology's ISGP, concluding that in many
11 respects the state version is more robust and effective at regulating industrial stormwater
12 discharges than the MSGP. *Ex. P- 21; Killelea Testimony.*

13 B. Overview of Relevant Permit Terms

14 [8]

15 The ISGP regulates multiple industrial sectors. These broad sectors of industries are
16 identified by the Standard Industrial Classification (SIC) Code system. In drafting the permit,
17 Ecology considered the manner in which stormwater may become contaminated by industrial
18 activities as a result of industrial processes, such as contact with material stored outside or during
19 loading, unloading or transfer, spills and leaks, and from airborne contaminants. Ecology
20 recognized that potential pollutants were often industry specific, but that there were also
21 significant common sources of stormwater contamination from the industrial sector (*e.g.*

petroleum products and metals are common to most facilities). Using DMR data submitted by

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1 permittees, Ecology compiled a characterization of pollutant concentrations present in the
2 discharges from various industry sectors. This data was consistent with other observations and
3 studies, to the effect that “first flush” events (runoff after a dry period) are associated with high
4 pollutant concentrations, and that there is a high degree of variability in stormwater runoff. *Fact*
5 *Sheet, pp. 3-34.*

6 [9]

7 *Stormwater Pollution Prevention Plans (Condition S3.)*

8 As with other general permits issued by Ecology to regulate stormwater discharges, a key
9 provision of the ISGP is the requirement that all permittees develop and implement a Stormwater
10 Pollution Prevention Plan (SWPPP). The ISGP sets out the items that the SWPPP must address
11 at each facility. The SWPPP must specify the best management practices (BMPs) necessary to
12 implement all known, available and reasonable methods of treatment (AKART), ensure
13 compliance with state water quality standards, and comply with applicable federal technology-
14 based treatment requirements. The ISGP requires the SWPPP to contain a site map, a detailed
15 facility assessment, a detailed description of BMPs, a spill prevention and emergency cleanup
16 plan, and a sampling plan. The SWPPP must contain certain “mandatory BMPs” (defined in the
17 permit), including a number of operational source control BMPs. The SWPPP must also include
18 structural source control BMPs that are listed as applicable in Ecology’s Stormwater
19 Management Manual (SWMM). The ISGP defines the manner and use of treatment BMPs.
20 Finally, the SWPPP is to contain a sampling plan, with identified points of discharge, and
21 documentation of why each discharge point is not sampled, consistent with other permit terms.

Condition S3.

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1 [10]

2 *General Sampling Requirements (Condition S4.)*

3 General sampling requirements are set out in Condition S4. of the ISGP, requiring
4 discharge sampling from each designated location at least once per quarter, and more specific
5 provisions applicable to sampling required at the first fall storm event of each year. The permit
6 allows a permittee to suspend sampling for one or more parameters (other than “visible oil
7 sheen”) based on “consistent attainment” of benchmark value after four consecutive quarterly
8 samples. *Condition S4.B.6.* The prior permit required eight consecutive quarters of attainment
9 before a permittee could suspend sampling. *Exs. P-5, B-36.* A permittee may not suspend
10 sampling based on consistent attainment for pollutant parameters that are subject to numeric
11 effluent limits based on federal guidelines or a 303(d) listing as an impaired water body.
12 *Condition S4.B.8.* Permittees monitoring more than once per quarter may average all the
13 monitoring results for each parameter (except pH and “visible oil sheen”), and compare that
14 value to the benchmark. *Condition S4.; Killelea Testimony.*

15 [11]

16 *Benchmarks, Effluent Limitations, and Specific Sampling Requirements (Condition S5.)*

17 Condition S5 of the ISGP establishes benchmarks (stated numerically) that are applicable
18 to all facilities, and additional benchmarks that are applicable to specific industry sectors.
19 *Condition S5., Table 2 and Table 3.* The term “benchmark” is defined in the permit as “a
20 pollutant concentration used as a permit threshold, below which a pollutant is considered
21 unlikely to cause a water quality violation, and above which it may.” The definitions also states

that when a pollutant concentration exceeds the benchmark, corrective action requirements are

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1 triggered, but emphasizes that benchmark values “are not water quality standards and are not
2 numeric effluent limitations; they are indicator values.” *ISGP, Appendix 2*. Thus, benchmarks
3 are predictive of potential water quality violations, and trigger a BMP-based response by the
4 permittee. Ecology’s definition of “benchmark” in the ISGP mirrors the definition used by EPA
5 in the MSGP, with minor wording changes. The prior permit had a combination of benchmark
6 values and “action levels,” but this two-tiered system was confusing and complex to administer.
7 *Ex. P-21; Killelea Testimony.*

8 [12]

9 The five benchmarks that are applicable to all facilities are as follows: 1) Turbidity at 25
10 NTU, 2) pH at between 5.0 and 9.0 Standard Units, 3) Oil Sheen at “no visible sheen,” 4) Total
11 Copper at 14 µg/L for Western Washington and 32µg/L for Eastern Washington, and 5) Total
12 Zinc at 117µg/L. The permit requires sampling once per quarter for each of these parameters.
13 *Condition S5., Table 2*. The copper benchmark is substantially lower (more stringent) than the
14 previous permit, and now applies to all permittees, but the zinc benchmark remains the same.
15 Both PSA and Copper Groups dispute the methodology used to establish the copper benchmark,
16 and argue that it is either underprotective (PSA), or overprotective (Copper Groups) of beneficial
17 uses. *Horner Testimony, Paulsen Testimony*. PSA also disputes the change to a “no visible
18 sheen” measurement of for oil and grease, and takes issue with the zinc benchmark. *Killelea*
19 *Testimony.*

20 [13]

21 The only additional benchmarks and sampling requirements at issue in this appeal are
those applicable to the Timber Product Industry and Paper and Allied Products Industry. PSA

1 asserts these are less stringent than the previous iteration of the ISGP. The permit sets a
2 benchmark of 120 mg/L for COD (chemical oxygen demand) and a benchmark of 100 mg/L for
3 TSS (total suspended solids). The prior permit had a lower benchmark for Biological Oxygen
4 Demand (BOD), and a dissolved oxygen (DO) benchmark for certain industries or facilities.
5 *Condition S5.B., Table 3; Horner Testimony, Johnson Testimony, Killelea Testimony.*

6 [14]

7 *Discharges to 303(d)-listed or TMDL Waters (Condition S6.)*

8 In addition to the benchmarks of Condition S5., Condition S6. of the ISGP sets out eleven
9 (11) numeric effluent limitations, and associated sampling requirements, for discharges to
10 303(d)-listed water bodies.³ Facilities that are subject to these numeric effluent limitations are
11 set forth (although not limited to) the facilities listed in Appendix 4 to the permit. *Condition*
12 *S6.C.a., and Table 5.* Boeing and PSA each challenge limited aspects of this condition of the
13 ISGP related to impaired water bodies. Boeing asserts that the Total Suspended Solids (TSS)
14 effluent limit of 30 mg/L is too stringent, as is the limit for fecal coliform bacteria, which is set at
15 the water recreation bacteria criteria of WAC 173-201A. Boeing asserts these were not
16 “appropriately derived” effluent limitations as directed by RCW 90.48.555, and are not science-
17 based. *Paulsen Testimony.* PSA, on the other hand, asserts that Ecology erred in failing to set
18 numeric effluent limitations for three additional parameters of concern in 303(d)-listed waters:
19 temperature, dissolved oxygen, and impairment based on fish tissue/bioassay. *Horner*
20 *Testimony.*

21 _____
³ 303(d)-listed water bodies is a reference to those segments of water bodies that have been listed as impaired pursuant to the federal Clean Water Act, at 33 U.S.C. § 1313(d).

Corrective Actions (Condition S8.)

Condition S8. of the ISGP requires three increasingly demanding levels of corrective action when a permittee exceeds applicable benchmark values set out in the other terms of the permit. These corrective actions begin with the assumption that the permittee has in place a SWPPP that represents AKART, and the corrective actions steps will result in incremental improvement in the application or use of BMPs to address the benchmark exceedance(s). A Level 1 corrective action is required for any exceedance of the applicable benchmark, and requires the permittee to make appropriate revisions to the SWPPP to include additional Operational Source Control BMPs with the goal of achieving applicable benchmark values in future discharges. The permittee must summarize the Level 1 corrective actions in its annual report to Ecology. The permit establishes a deadline to fully implement the revised SWPPP “as soon as possible, but no later than the DMR due date for the quarter the benchmark was exceeded” (which is forty-five days after the end of the quarter, per Condition S9.A.4.).

Condition S8.B. Although Ecology views this Level 1 provision as substantially identical to the previous permit, the 2010 ISGP does not have a specific timeframe by which a permittee must initiate a response to a benchmark exceedance, whereas the previous permit required a facility inspection “as promptly as possible but no later than two weeks after sampling results.” Exs. P-5, B-36; *Killelea Testimony*.

The permit requires a Level 2 corrective action when a permittee exceeds an applicable benchmark value for any parameter for any two quarters during a calendar year. At a Level 2

1 corrective action, the permittee must review the SWPPP and revise it to include additional
2 structural source control BMPs, with the goal of meeting the benchmark values in future
3 discharges. Corrective actions planned or taken must be summarized in the Annual Report to
4 Ecology (due May 15 of the following calendar year, per Condition S9.B.1.). The deadline is for
5 implementation of the revised SWPPP is “as soon as possible, but no later than September 30th
6 the following year.” *Condition S8.C.* The permit includes no deadline by which a permittee must
7 begin a Level 2 response. Ecology expects some permittees will begin implementing Level 2
8 structural source control BMPs as soon as possible in an effort to avoid a third benchmark
9 exceedence in the same calendar year, which would trigger a Level 3 response; however, the
10 agency is interpreting the permit and advising permittees that they may wait until the end of a
11 calendar year to begin a Level 2 response even if a benchmark was exceeded in the first two
12 quarters. *Killelea Testimony; Stasch Testimony.*

13 [17]

14 The permit requires a Level 3 corrective action when a permittee exceeds an applicable
15 benchmark value for any single parameter for any three quarters during a calendar year. At a
16 Level 3 corrective action level, the permittee must revise the SWPPP and include additional
17 treatment BMPs with the goal of achieving the benchmark in future discharges. The permittee
18 must sign and certify the revised SWPPP, and also have a licensed professional engineer,
19 geologist, hydrogeologist, or Certified Professional in Storm Water Quality (CPSWQ) design
20 and stamp the portion of the SWPPP that addresses stormwater treatment structures or processes.
21 Ecology may waive this certification requirement one time during the permit cycle when the

1 and install the treatment device. The permittee must fully implement the revised SWPPP as soon
2 as possible, but no later than September 30th the following year. *Condition S8.D.4.; Killelea*
3 *Testimony.*

4 [18]

5 Ecology may modify the deadlines for a Level 2 or Level 3 corrective actions if
6 installation of necessary structural source control BMPs (Level 2) or treatment BMPs (Level 3)
7 is not feasible by the permit’s deadline. If installation of structural source control or treatment
8 BMPs is “not feasible or not necessary” to prevent discharges that may cause or contribute to a
9 violation of a water quality standard, Ecology may waive the requirement altogether. Both
10 modifications of the deadlines and waiver of the requirements are accomplished through a
11 “modification of coverage” request, which results in a formal modification of the permit to that
12 particular permittee. Boeing asserts that the waiver provisions are unclear and ambiguous,
13 particularly as it relates to other requirements of the permit to implement the adaptive
14 management scheme in an effort to meet benchmarks. PSA says the waiver provision is
15 unlawful as the permit then fails to require compliance with water quality standards.

16 [19]

17 In addition to the permit terms allowing modification of deadlines, or waivers of the
18 Level 2 and Level 3 requirements, Condition S8. contains two footnotes that have cast confusion
19 on when a Level 3 deadline is triggered if a permittee has already undertaken a Level 2 response.
20 *Condition S8.C. and D. (footnotes 4 and 5).* Ecology intended that these footnotes would clarify
21 that a permittee must consider an entire calendar year of sampling results before determining

whether to implement a Level 2 or 3 corrective action, but the language of footnote 4 in

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1 particular, suggests otherwise. Ecology’s interpretation would result in “alternating years” for
2 implementation of such corrective actions, something Ecology wanted in the permit’s adaptive
3 management scheme in order to give facilities adequate time to address reported problems.

4 *Killelea Testimony.*

5 [20]

6 Both PSA and Boeing criticize the ISGP’s fundamental reliance on a combination
7 effluent limitations expressed either as benchmarks, which are part of the adaptive management
8 scheme of the permit, and the numeric effluent limitations applicable to particular discharges.
9 PSA asserts that Ecology should establish numeric effluent limitations for all industrial
10 discharges, and that it is feasible to do so. PSA reasons that this would force facilities to transfer
11 industrial activities and material out of contact with rainfall and runoff, resulting in maximum
12 reuse of industrial stormwater, and treatment of the remainder with the best available
13 technologies. PSA asserts that these numeric effluent limitations should be based on a
14 “reasonable potential analysis” that would assess whether there is a reasonable potential for
15 discharges to cause or contribute to water quality standards exceedances, where non-numeric,
16 BMP-based approaches are ineffective. *Horner Testimony.* Boeing, on the other hand, presented
17 evidence criticizing both the benchmark-based BMP aspects of the permit, and the inclusion of
18 any numeric effluent limitations. Boeing asserts that existing datasets are insufficient to allow
19 determination of “reasonable potential,” or to serve as the basis for the calculation of
20 scientifically sound effluent limitations or benchmarks. While agreeing that a BMP-based
21 approach is both feasible and improves water quality, Boeing asserts this approach should be

1 paired not with “benchmarks,” but rather with “action levels,” which are a less rigorous trigger
2 for adaptive management at a particular facility. *Paulsen Testimony*.

3 [21]

4 Business entities subject to regulation under the terms of the ISGP offer conflicting views
5 as to the clarity, lawfulness and acceptability of various permit terms. Boeing and
6 Weyerhaeuser, both parties to this case presented contrasting views of their ability to understand
7 and comply with permit terms. Boeing testified that the adaptive management provisions of the
8 permit are extremely confusing, and that they are unsure of the meaning of waiver provisions
9 that provide facilities relief from aspects of the corrective action provisions of the permit.
10 Boeing questions whether the corrective action scheme of the ISGP actually represents a real
11 adaptive management process that includes planning, implementation, monitoring, and
12 responding, as was intended, or whether the permit’s prescriptive emphasis on meeting
13 benchmarks that apply uniformly across industrial sectors will drive an excessive amount of
14 needless corrective action by business. *Oleson Testimony*. In contrast, Weyerhaeuser states the
15 new permit provides site managers with a confident path to compliance, giving them a good
16 balance of mandatory BMPs and industry specific BMPs, as well as associated “waiver”
17 provisions that allow the facility to show it can still comply with water quality provisions, even if
18 it cannot consistently meet the permit’s benchmark indicator values. The company’s corporate
19 environmental manager expressed a clear understanding of what the business would do if one of
20 its facilities continued to fail to meet benchmark values, and needed a waiver of the corrective
21 action level responses under Condition S8. Weyerhaeuser states that the new permit is less

1 complex than the last iteration, particularly in the corrective action provisions. *Johnson*
2 *Testimony.*

3 C. Development of Benchmarks

4 1. *Copper and Zinc Benchmarks*

5 [22]

6 The previous version of the ISGP had a copper benchmark of 63.6 µg/L and a zinc
7 benchmark of 117 µg/L. *Ex. P-5.* Ecology's decision to include a much lower copper
8 benchmark in this version of the ISGP was influenced by experience in setting a very high
9 copper benchmark in the 2005 Boatyard General Permit (which was set aside on appeal), and a
10 turbidity benchmark in the 2005 Construction Stormwater General Permit (which was affirmed
11 on appeal). With the ISGP benchmark value for copper and zinc, Ecology sought to protect
12 beneficial uses in the vast majority of conditions, balancing that goal with a recognition that
13 toxicity of metals (and some other pollutants) is influenced by factors in the receiving waters,
14 where the discharge is dispersed. *Killelea Testimony.*

15 [23]

16 Copper can decrease survival, growth, and reproduction of aquatic organisms. Copper
17 concentrations in stormwater discharges have a number of serious sublethal effects on salmonids.
18 Copper can interact with the olfactory system of fish and aquatic invertebrates, causing them to
19 avoid copper-containing water. Once impaired by copper exposure, fish and organisms will lose
20 important functions such as attraction to food odors and reproductive pheromones, or avoidance
21 of predators. Studies have demonstrated avoidance of copper or impairment of olfaction in
salmonid fishes exposed to very low levels of copper concentrations (as low as 1 to 2µg Cu/L).

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1 In addition to disrupted osmoregulation, inhibited migration, and olfactory impairment, other
2 studies identify copper exposure as contributing to impaired disease resistance, impaired
3 respiration and brain function, and altered blood chemistry. While experts largely agree on the
4 range of lethal and sublethal effects of copper on salmonids and other aquatic organisms, there is
5 sharper disagreement about the extent to which water chemistry, and Washington specific water
6 chemistry, modifies the acute and chronic toxicity of copper to these organisms. There is related
7 disagreement as to the interpretation of various studies, and at what copper concentration levels
8 adverse effects appear in salmonid fish. *Meyer Testimony, Horner Testimony; Exs. C-7, C-10.*

9 [24]

10 In order to develop the copper benchmark for this iteration of the ISGP, Ecology hired
11 Herrera Environmental Consultants to evaluate the effects of receiving water chemistry on the
12 toxicity of copper discharges. Herrera evaluated the probability of exceeding the acute water
13 quality standards for copper, lead, and zinc based on receiving water conditions having the
14 highest potential for occurrence. *Killelea Testimony, Lenth Testimony.* Herrera, lead by
15 principle scientist John Lenth, produced a report in February 2009 addressing this issue. *Water*
16 *Quality Risk Evaluation for Proposed Benchmarks/Action Levels in the Industrial Stormwater*
17 *General Permit. Exs. B-20, P-12, E-6; Lenth Testimony.*

18 [25]

19 The Herrera report relies on a Monte Carlo simulation, a well-established statistical
20 method utilized to estimate possible outcomes from a model by performing repeated calculations
21 a large number of times and observing the outcomes. When the results from all the repeated
calculations are combined, a probability distribution can be derived for the model output that

1 indicates which predicted values have a higher probability of occurrence. In this case, Herrera
2 used the Monte Carlo simulation to give a realistic prediction of the probability of industrial
3 stormwater discharges exceeding the acute water quality criteria for copper, lead, and zinc, given
4 one of three dilution factors in the receiving water (1, 5, or 10). Experts agree that the dynamic
5 modeling approach of a Monte Carlo simulation provides a more realistic representation of
6 receiving water concentrations and/or toxicity than steady-state models used to evaluate less
7 variable effluent discharges such as those from waste water treatment plants. *Lenth Testimony,*
8 *Paulsen Testimony.* The Herrera report presented the results of the simulation as a series of
9 graphs that depict the percentage (%) probability of exceeding water quality standards as a
10 function of effluent concentrations given one of these three dilution factors. These graphs
11 presented Ecology a picture of the likelihood, or risk, of exceeding water quality criteria for each
12 of these pollutants, depending on the given dilution factor. Ecology then had a policy choice to
13 determine which of the risk levels, and associated discharge effluent limitations, were acceptable
14 and could be used for permit benchmarks. The Herrera report also used a “translator value” to
15 facilitate comparison of the acute water quality standard for copper in the receiving water with
16 the predicted concentration of copper at the point of discharge. The translator value allowed
17 Herrera to estimate the dissolved fraction of copper that would be present in the receiving water
18 for effluent concentrations that are required by federal regulations to be expressed as total
19 recoverable metals. The evaluation also factored in the hardness of receiving waters in Western
20 and Eastern Washington. The author of the Herrera report sets out the data relied upon, and in
21 pre-filed testimony clarifies and responds to criticisms levied by other experts of that data. *Lenth*

Testimony, Exs. B-20, P-12, E-6.

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1 [26]

2 Based on the Herrera analysis and probability “risk curves,” Ecology made the decision
3 to base the copper benchmark in the ISGP on a dilution factor of 5 and a 10% probability of
4 exceeding the acute water quality standard for copper. Ecology recognized that the
5 concentration of the metal in a stormwater discharge is dispersed to some degree in the receiving
6 water. Ecology did not consider use of a dilution factor as a method to evaluate probability of
7 exceeding water quality standards to be the same as granting a “mixing zone,” which is allowed
8 by regulation under limited circumstances. Rather, the agency concluded that the copper
9 benchmark level of the final ISGP would be protective of water quality in the vast majority of
10 conditions. Where a modest amount of dilution is available in the receiving water, the agency
11 further determined that, in order to meet a benchmark of 14µg/L (Western WA) and 32 µg/L
12 (Eastern WA), a facility will need to be implementing all necessary and relevant BMPs, and
13 AKART. *Killelea Testimony; Exs. B-20, P-12, E-6.*

14 [27]

15 EPA supported Ecology’s selection of copper benchmarks at 14 µg/L and 32 µg/L for
16 western and eastern Washington, respectively. EPA noted that the benchmarks were
17 significantly lower than the 63.6 µg/L of the previous permit and more representative of a level
18 that would ensure attainment of the copper water quality standard and avoid or minimize adverse
19 effects to aquatic species. While EPA’s own MSGP includes a lower copper benchmark level
20 (5.6 µg/L for Western Washington freshwaters), EPA concluded that the ISGP contained “more
21 robust non-numeric effluent limitations” such as specific corrective action steps and vacuum
sweeping, which provided a similar level of protection to the MSGP. *Ex. P-20; Killelea*

1 *Testimony.* On the other hand, the National Marine Fisheries Service (NMFS) was more critical
2 of these benchmark levels, and concluded in comments on the draft permit that benchmarks
3 based on a dilution factor of 5, and a 10% risk for exceeding the applicable water quality
4 standard for each metal, is not an approach that provides adequate protection for listed salmon.
5 NMFS did not believe more than minor detrimental effects to listed salmon and steelhead would
6 be avoided under the draft terms of the ISGP. *Ex. P-21.*

7 [28]

8 Both Boeing and Copper Groups criticize the copper benchmarks as unreasonably
9 stringent. They contend the benchmark is overprotective, and that Ecology failed to use best
10 available science to calculate appropriate values. Copper Groups opines that Ecology should
11 have employed a water effects ratio (WER) or biotic ligand modeling (BLM), two procedures
12 that could take into account chemical and physical factors that mitigate the toxicity of copper to
13 aquatic organisms. Copper Groups asserts that the Herrera report provides an insufficient basis
14 to support the technical validity of the copper benchmarks, and that using only water hardness as
15 a modifying factor for the toxicity of copper is now an outdated approach. Copper Groups,
16 through their expert, Dr. Meyer, advances use of the BLM as a method to account for the ways in
17 which pH, alkalinity, hardness, and dissolved organic carbon modify the toxicity of metals to
18 fish and other aquatic organisms. Dr. Meyer opines that given Ecology's use of a dilution factor
19 of 5, the ISGP's authorized instream concentrations of copper are even lower than expressed in
20 the permit's effluent limitation, ensuring they are protective, or over-protective, of salmonid fish.
21 *Ex. C-11; Meyer Testimony.* Dr. Meyer and PSA's expert, Dr. Horner, disagree on many

1 of a 10% risk of exceedance factor, on the basis that they allow benchmarks that will result in
2 harm to salmonid fish. Dr. Horner agrees that dissolved organic carbon, a key factor in the biotic
3 ligand model, tends to ameliorate the negative effects of copper, but states that it is generally is
4 not in sufficient supply in Washington's water to protect fish. *Horner Testimony.*

5 [29]

6 EPA recently modified its water quality criteria to be based on a biotic ligand model,
7 rather than water hardness based criteria, which is the current basis of Washington's water
8 quality standard for copper. Although EPA has taken this step, the new BLM-based copper
9 criteria have not been adopted by any of the states in which migration and spawning of Pacific
10 salmonids are a major concern (or any other states), nor has it been used to develop NPDES
11 permit conditions to date. *Ex. C-7; Meyer Testimony.*

12 [30]

13 Ecology has previously used a WER to account for the mitigating effects of receiving
14 water on the toxicity of metals in limited circumstances, including in at least one individual
15 permit, and in one general permit. Ecology used a modified form of a WER in development of
16 the last iteration of the Boatyard General Permit in 2005, but rejected a similar use in the
17 development of the ISGP for several reasons. First, the water quality standards state that a WER
18 is to be applied on a site-specific basis. The ISGP represents a much more diverse set of
19 discharges and receiving water conditions than were present in the somewhat more limited
20 situation of western Washington boatyard-specific discharges. More importantly, since
21 Ecology's use of a WER in the Boatyard General Permit, EPA has informed Ecology that use of
a WER is a change to the state water quality standards, creating a new water quality standard for

1 a particular body of water. EPA has informed Ecology that such a change requires EPA
2 approval and a rule revision process by Ecology, a costly and lengthy process. The last revision
3 of the state water quality standards, with attendant EPA review and approval, took ten years.
4 This has effectively taken use of the site specific WER off the table as a tool to adjust water
5 quality criteria, at least until such time as EPA modifies its stance. Rather than attempt to utilize
6 a WER in the modified manner it has used it in other settings, Ecology chose instead to take into
7 account receiving water characteristics through use of the Monte Carlo simulation, which
8 factored in hardness, a dilution factor, and a translator value to facilitate a comparison of
9 dissolved fractions of metals to total recoverable metals in the discharge versus receiving waters.
10 *Gildersleeve Testimony, Killelea Testimony.*

11 [31]

12 The conflicting expert opinions and evidence on the proper approach to establishing a
13 copper benchmark, and what the proper value for a benchmark should be, demonstrate the
14 difficulty of arriving at an adequately protective benchmark that is also achievable by industry
15 and moves industry towards compliance with the water quality standards. While Boeing and the
16 Copper Groups experts disagree with the methodology for arriving at the copper benchmark,
17 they agreed the benchmark is sufficiently protective, if not overly protective, of salmon and
18 trout, disagreeing with the opinions of PSA's expert. *Ex. C-10; Meyer Testimony, Paulsen*
19 *Testimony.* PSA's expert criticizes the benchmark as being far higher than that set out in the
20 MSGP, but disregards EPA's own analysis of how the benchmark works in relation to other
21 demanding permit terms. *Horner Testimony.*

1 [32]

2 The Board was presented with little evidence supporting a challenge to the zinc
3 benchmark of the ISGP. The zinc benchmark of the ISGP is set at 117µg/L and is unchanged
4 from the prior permit. The Herrera report analyzed zinc in the same manner as copper, and
5 presented Ecology with three risk curves based on dilution factors of 1, 5, and 10. If Ecology
6 had applied the same standard that it applied to copper (dilution factor of 5, and a 10% risk
7 threshold for exceeding the applicable water quality standard), the zinc benchmark would have
8 been higher, and the permit could have been challenged for backsliding on this effluent
9 limitation. *Lenth Testimony, Killelea Testimony; Ex. B-21.*

10 2. *Timber Product Industry, Paper and Allied Products Benchmarks – COD and TSS*

11 [33]

12 The 2010 ISGP benchmark for the timber product industry and paper and allied products
13 industry differs from the benchmark in the prior permit. The last permit had a benchmark for
14 BOD at 30 mg/l, and no benchmark for Total Suspended Solids (TSS). The current ISGP, with
15 benchmarks of COD at 120mg/l and TSS at 100 mg/l, is consistent with EPA's MSGP (in the
16 case of TSS), and represents a more complete and accurate measure of oxygen demanding
17 substances in the water (in the case of COD). The change to the new benchmark was responsive
18 to public and industry comment, and took into account the limitations of a sampling regime
19 based on BOD, which can be interfered with by toxic materials, and was developed more for use
20 in the sampling of sewage wastewater, not stormwater. The COD benchmark value is four times
21 higher than the previous BOD benchmark. To establish this 4:1 ratio, Ecology relied on

information used by EPA in establishing the same benchmark in the MSGP, which was, in turn,

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1 based on a North Carolina study that established a 4:1 equivalency ratio (COD to BOD).
2 Ecology's permit writer, Jeff Killelea also looked at other data that evaluated the relationship of
3 BOD to COD in stormwater, including stormwater from industrial land uses, which showed even
4 greater ratios of COD to BOD, leading him to conclude that although higher in number (100
5 mg/l), the COD benchmark may be more protective of water quality than the previous lower
6 BOD limit. *Killelea Testimony.*

7 [34]

8 PSA contends that the benchmark of 120 mg/L COD is less demanding than the 30 mg/l
9 BOD of the previous permit, and therefore represents backsliding in permit terms. PSA states
10 that it is widely held that the relationship between BOD and COD is highly variable and that a
11 reliable conversion can only be obtained through side-by-side measurements of the two variables
12 over time. While not objecting to use of COD as a replacement to a BOD benchmark, PSA
13 asserts the benchmark value must rest on a stronger analytical foundation, and that there should
14 be parallel analyses of both BOD and COD to determine if a reliable conversion can be
15 developed to translate from one measure to the other under conditions in Washington waters.
16 *Horner Testimony.*

17 [35]

18 Weyerhaeuser, a permittee specifically affected by the COD and TSS benchmarks,
19 considers the new combination of benchmarks to be more demanding than the previous permit,
20 and states there will be no reduction of effort due to the change to a COD benchmark.

21 Weyerhaeuser also agrees that the relationship between BOD and COD is variable, but provided
convincing evidence from literature reviews, regulatory discussion, and specific sampling results

1 demonstrating that COD is always the higher of the two values, usually materially higher. The
2 Weyerhaeuser sampling results demonstrate that a 4:1 ratio, BOD to COD, is well-founded, if
3 not conservative. *Exs. W-1, W-2, W-3A, W-3B, W-3C; Johnson Testimony.*

4 *3. Oil/visible sheen benchmark*

5 The prior version of the ISGP had a benchmark of 15 mg/l for oil and grease. The
6 current version of the ISGP changed to a benchmark of “no visible oil sheen,” applicable to all
7 facilities. *Condition S5.A. (Table 2).* Ecology also set an additional related benchmark for
8 specific, higher risk industries for a Total Petroleum Hydrocarbons (TPH). *Condition S5.A.*
9 *(Table 3).* Ecology made this decision based on a consultant report that concluded only a low
10 level of industrial facilities exceeded the prior benchmark, and because the changed standard
11 could provide more instantaneous results to a facility, and therefore, more immediate corrective
12 action. Ecology’s decision was also based on problems encountered by permittees in obtaining
13 grab samples with representative amounts of oil/grease for reliable lab analysis. *Killelea*
14 *Testimony.* PSA’s testimony asserts that the switch to a “visible oil sheen” benchmark is a
15 weakening of the permit, because it accounts for only floating oil, not dissolved, solidified, or
16 emulsified petroleum fractions in the water, which do not show as an oil sheen. PSA states that
17 observing stormwater discharges for oil sheen will likely be ineffective, because there is no
18 requirement to observe receiving waters, and the turbulence associated with stormwater runoff
19 will not lend itself to visual detection of an oil sheen. Other circumstances, such as evaporation,
20 may also render this an unreliable benchmark standard, according to PSA. *Horner Testimony.*
21 Ecology rejects these criticisms as improbable, and has provided guidance on how to sample for

this modified parameter. Ecology states that the addition of TPH as a parameter for industries of

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1 particular concern for petroleum discharges is an improvement over the prior permit. *Ex. P-9;*
2 *Killelea Testimony.*

3 D. Numeric Effluent Limitations for Discharges to 303(d)-listed Water Bodies

4 1. *Total Suspended Solids (TSS)*

5 [36]

6 Permittees who discharge to water bodies 303(d)-listed for any *sediment* quality
7 parameter are required to sample the discharge for TSS. *Condition S6. C. (Table 5).* The TSS
8 effluent limit is set at 30mg/L for both fresh and marine water. Boeing contends that the TSS
9 effluent limitation is not based on sound science, and that a site-specific evaluation is needed to
10 determine if any given industrial facility discharge will cause or contribute to an exceedance of
11 sediment management standards. Boeing states that the mixing behavior and sediment
12 deposition patterns within receiving waters are complex and the concentrations of pollutants on
13 sediment particles varies widely. Boeing also contends that TSS is not correlated with other
14 pollutant concentrations, and cannot serve as a surrogate for those pollutants. For these reasons,
15 Boeing asks the Board to conclude that Ecology could not appropriately derive a limit for TSS
16 and that the ISGP should not contain a TSS effluent limitation. *Paulsen Testimony.*

17 [37]

18 Ecology included the TSS limitation in the ISGP because NPDES permitted discharges
19 result in recontamination and exacerbation of problems at sites being addressed, and remediated,
20 under Ecology's Toxics Cleanup Program. Ecology staff in that program concluded that both
21 municipal and industrial stormwater discharges have contributed to exceedances of sediment
management standards and impacts to sediment quality at various sites, including several

1 Superfund clean-up sites. The Toxics Cleanup Program offered ISGP permit writers several
2 options to address potential recontamination of aquatic sediment sites by industrial discharges,
3 including options that would require monitoring of effluents for a variety of pollutants that
4 contribute to violations of sediment management standards (such as PCBs). The ISGP permit
5 writing team rejected other options as unreasonable, as such options involved substantial costs
6 for permittees to monitor effluent, and a substantial burden on Ecology to evaluate data collected
7 by permittees. The option that ultimately became the effluent limitation of the permit assumed
8 that compliance with a 30mg/L TSS parameter would be sufficient to maintain compliance with
9 sediment management standards, so long as other operational source control BMPs, such as
10 sweeping and catch basin cleaning, were aggressively implemented at facilities. Implementation
11 of such BMPs is expected to capture particulates that attach to sediments (such as PCBs,
12 pesticides, phthalates), and protect against contamination and recontamination of sediments in
13 the receiving water. The Toxics Cleanup Program did not agree that the effluent limitation of
14 30mg/L was adequate to ensure compliance with the sediment management standards. *Ex. B-89;*
15 *Killelea Testimony.*

16 2. *Fecal Coliform*

17 [38]

18 The presence of fecal coliform bacteria in state waters is one of the primary water quality
19 problems that has led to listing some water bodies on the 303(d) list as impaired (along with
20 impairment due to temperature). *Ex. P-26.* The ISGP sets a numeric effluent limitation for
21 discharges to water bodies 303(d)-listed for fecal coliform bacteria at the water recreation
bacteria criteria (WAC 173-201A) applicable to the receiving water body. *Condition S6.C.,*

1 *Table 5.* Boeing criticizes this limitation as unnecessary, asserting that it is too stringent, and
2 that fecal coliform is unlikely to be present in runoff from industrial facilities. *Paulsen*
3 *Testimony.* While Ecology recognized that fecal coliform is generally associated with nonpoint
4 source pollution or diffuse sources, the agency considered the permit effluent limitation to be an
5 easily applied standard. *Ex. P-26; Killelea Testimony.*

6 3. *Omission of Specific Numeric Effluent Limitations to Water Bodies Impaired for*
7 *Dissolved Oxygen, Temperature, and Fish Tissue/Bioassessment.*

8 [39]

9 At the time of the development of the 2010 ISGP, approximately 172 facilities, out of the
10 nearly 1200 regulated by the permit, discharged to a 303(d)-listed water body. According to
11 Ecology's data, most of those facilities discharged to water bodies impaired due to high
12 temperature, high bacteria, and low dissolved oxygen. *Ex. P-26.* In developing the numeric
13 effluent limitations for discharges to 303(d)-listed water bodies (set out at Condition S6.),
14 Ecology applied a qualifying factor, and established effluent limitations only if the pollutants
15 causing the impairment reasonably could be expected to be a component of stormwater
16 discharges associated with industrial activity. *Fact Sheet, pp. 49-50.* This assumption resulted in
17 the exclusion of dissolved oxygen (DO), temperature, and impairment due to contaminated fish
18 tissue or bioassessment from the numeric effluent limitations of the ISGP. Ecology's conclusion
19 on these three parameters also rested on the difficulty in deriving an effluent limitation that could
20 be tied directly back to industrial dischargers, although the Fact Sheet for the ISGP did not
21 express the conclusion in such terms. *Moore Testimony.* In December 2008 Ecology prepared a

1 for discharges to 303(d)-listed water bodies, a requirement of state law. Although the report
2 explored several options, Ecology never submitted the report to the Legislature. In that
3 document, the agency considered several options for establishing water-quality based numeric
4 effluent limits for discharges to 303(d)-listed waters, one using regional or statewide
5 assumptions of the discharge and receiving water characteristics, the second using site specific
6 information to derive limits. Ultimately, Ecology decided to not develop effluent limitations for
7 DO, temperature and impairment due to contaminated fish tissue/bioassessment, and, instead,
8 applied numeric limits only to facilities discharging to impaired water bodies that were listed due
9 to pollutants that are typically present in industrial stormwater discharges at concentrations that
10 could cause further impairment. *Ex. P-26; Killelea Testimony, Moore Testimony.*

11 [40]

12 In the prior version of the ISGP, approximately 80 facilities were subject to a benchmark
13 for dissolved oxygen discharges to impaired water bodies. *Exs. P-5, P-25, P-27, P-30.* The
14 benchmark was set at the water quality criteria for DO, which is expressed in terms of a relative
15 standard that takes into account receiving water concentrations, uses of the water body at the
16 point of discharge, the frequency/persistence of the measurements over time, and whether
17 background levels of DO are due to natural versus human-caused conditions. *WAC 173-201A.*
18 Yet the permit only required sampling of the industrial stormwater discharge at the point of
19 discharge. *Ex. P-5.* Discharge sampling results could not be readily analyzed in the context of
20 the other variables contained in the DO water quality criteria, and therefore provided no
21 meaningful information about an industrial stormwater discharge's potential contribution to any
violations of dissolved oxygen standards. *Moore Testimony.* The current ISGP omits a similar

1 benchmark for that group of industrial dischargers, as well as omitting any numeric effluent
2 limitation for facilities that discharge to water bodies impaired for dissolved oxygen. Some of
3 the 80 or so facilities that had been subject to a dissolved oxygen benchmark in the old permit
4 are now subject to a new requirement to monitor against the COD and TSS benchmarks. For
5 example, Weyerhaeuser had facilities that were previously required to monitor and report for
6 dissolved oxygen when discharging to an impaired water body (e.g. Willapa River), but no
7 longer has such a requirement. The facility does have an applicable COD and TSS benchmark,
8 however. *Ex. W-3A; Johnson Testimony.*

9 [41]

10 PSA argues that Ecology could and should have derived an effluent limitation for DO,
11 temperature, and contaminated fish tissue impairment. PSA asserts that industrial discharges,
12 which contain substances which have a high oxygen demand, will negatively affect dissolved
13 oxygen levels in impaired waters. PSA also asserts that the lack of a DO effluent limitation for
14 the 80 facilities that used to have it represents impermissible backsliding. *Horner Testimony.*

15 [42]

16 *Dissolved Oxygen:* Ecology did not set a numeric effluent limitation for water bodies
17 303(d)-listed due to low dissolved oxygen primarily because low DO is a seasonal (summer)
18 impairment problem, while stormwater discharges in Washington commonly occur from October
19 through April. Also, industrial stormwater discharges do not typically involve low levels of DO
20 in the discharge itself, but rather are more likely to contain pollutants that will affect DO levels
21 in the receiving water at some later point. Low DO level in impaired water bodies is typically

1 algae and plant growth, the decay of which depletes oxygen levels in the summer. Such low DO
2 levels are also attributable to the presence of other wastewater or substances with a high
3 biochemical oxygen demand (BOD). However, Ecology considers these kinds of pollutants to
4 have a “far field” effect, meaning the demand for oxygen in the water does not occur close in
5 time or physically close to where the effluent or runoff water is discharged, but further
6 downstream and on a delayed timeframe. Thus, Ecology concluded that these temporal and
7 spatial variables make it exceedingly difficult to correlate a particular stormwater discharge from
8 an industrial facility to a low DO problem in a water body. Ecology concluded that intensive
9 modeling would be necessary to make the correlation to support a connection between particular
10 types of stormwater discharges and low DO in an impaired segment of a water body, distant
11 from a discharge point. It was not practicable to do so, nor a cost effective effort given
12 Ecology’s determination that industrial stormwater discharges are not likely to be a significant
13 contributor to low DO in most instances. For these same reasons, Ecology did not impose a DO
14 limit on the 80 or so facilities that previously had been subject to such a benchmark. *Moore*
15 *Testimony; Fact Sheet, pp. 49-51.*

16 [43]

17 *Temperature:* Setting a numeric effluent limitation for discharges to water bodies
18 impaired for temperature presented Ecology similar challenges to that of dissolved oxygen.
19 Ecology concluded that temperature is a seasonal water quality problem, and that stormwater
20 discharges do not typically occur during the late summer months when temperature impaired
21 water bodies are warmer and susceptible to thermal loading (discharge of heated water). Again,

1 the agency concluded it could not effectively derive a meaningful effluent limitation for
2 temperature.

3 [44]

4 *Impairment due to Contaminated Fish Tissue:* Setting a numeric effluent limitation for
5 discharges to water bodies impaired due to contaminated fish tissue, such as PCBs, mercury,
6 DDT, or bioassessment (surveys of benthic invertebrate communities) presented a similar
7 challenge to that of dissolved oxygen and temperature. Ecology concluded that it would be
8 extremely difficult to identify a direct relationship or any correlation between stormwater
9 discharges from an industrial facility and the contamination present in a fish or invertebrate
10 community, sometimes far removed from that area. Again, Ecology concluded that it could not
11 derive a science-based, defensible number to serve as a numeric effluent limitation for discharges
12 to water bodies impaired for this parameter. *Moore Testimony.*

13 4. *TMDLs*

14 [45]

15 The ISGP requires Permittees to comply with applicable TMDL (total maximum daily
16 load) determinations, which are essentially water clean-up plans that limit the amount of a
17 particular pollutant that various contributing sources may discharge into the impaired water
18 body. Where Ecology has established a TMDL wasteload allocation and sampling requirements
19 for a permittee's discharge, the permittee is required to comply with "all requirements of the
20 TMDL as listed in Appendix 5" to the permit. *Condition S6.D.2-7.* However, Appendix 5 states
21 the Ecology has performed a review of TMDL documents and determined that "no facilities

currently covered under the ISGP discharge to a water body with a TMDL wasteload allocation

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1 for stormwater associated with industrial activity.” Ecology then concludes that no facilities
2 covered by the ISGP are subject to additional sampling or effluent limitations related to TMDLs.
3 *Ex. B-1A (Appendix 5 to ISGP)*. Ecology testified that industrial facilities typically have not
4 been given part of the wasteload allocation in the TMDL process because such facilities are
5 generally a de minimis source of the pollutant of concern compared to the larger watershed, and
6 the related difficulty of providing a particular discharge limitation for a specific industrial
7 permittee. So, while the permit requires compliance with applicable TMDL determinations,
8 there are none, at least at this time. *Killelea Testimony, Moore Testimony*.

9 [46]

10 PSA criticizes Ecology’s conclusion that additional sampling and monitoring is not
11 required because of the lack of connection between ISGP permittees and the waste load
12 allocation in an impaired water body that is subject to a TMDL. PSA asserts that while there
13 may be a recognition that stormwater discharges are of concern to the TMDL, without targeted
14 sampling and monitoring to better define the stormwater contribution to the problem, it will
15 remain difficult to develop a strategy to begin addressing it. Characterizing this as a “great flaw
16 in Ecology’s management of the state’s water resources,” PSA asks that the Board direct that the
17 permit be amended to provide for setting waste load allocations tied to industrial stormwater
18 discharges, or, at a minimum, require sampling to determine industrial stormwater contributions
19 for the problem and/or if TMDLs are being met. *Horner Testimony*.

1 E. Compliance with Antidegradation Requirements

2 [47]

3 Discharges to surface waters associated with industrial activities under the ISGP are
4 expected to degrade water quality, even if such discharges are in compliance with water quality
5 standards. For this reason, there has been no dispute that the General Permit must comply with
6 both water pollution control statutes and implementing regulations that prohibit degradation of
7 state waters. *See* RCW 90.54.020(3); WAC 173-201A, Part III. When Ecology issued the
8 General Permit, the agency had a choice to prepare either a “Tier II antidegradation analysis” for
9 any new or expanded actions authorized under the ISGP, or, in the alternative, rely on an
10 adaptive process authorized in the rules. *See* WAC 173-201A-320 (1)-(6). Ecology relied on the
11 alternative, adaptive process in order to comply with the antidegradation rule. The question of
12 whether this alternative process was adequate to comply with antidegradation requirements was
13 put before the Board by PSA on summary judgment and a related request for a stay (Legal Issue
14 No. 12). Although the Board denied the summary judgment motion, it concluded that Ecology
15 had issued the ISGP without an alternative, adaptive process in place to “select, develop, adopt,
16 and refine control practices for protecting water quality” as required by the antidegradation rule.
17 WAC 173-201A-320(6)(iii). The Board issued a partial stay prohibiting Ecology from granting
18 coverage under the ISGP for new or expanded actions until there was compliance with
19 antidegradation requirements. This decision rested in part on the fact that Ecology had relied on
20 the discontinued Guidance for Evaluating Emerging Stormwater Treatment Technologies,
21 Technology Assessment Protocol-Ecology (TAPE) to satisfy Ecology’s obligation under the
antidegradation rule. The primary purpose of TAPE is to establish a testing protocol and process

1 for evaluating and reporting on the performance and appropriate uses of emerging stormwater
2 treatment technologies. *Order Granting Partial Stay and Denying Summary Judgment (Legal*
3 *Issue No. 12), July 30, 2010.*

4 [48]

5 Since issuance of the Stay by the Board in July 2010, the discontinued TAPE process has
6 resumed through a Technical Resource Center managed by Washington State University and the
7 City of Puyallup, with Ecology involvement. The protocol requires vendors or permittees to
8 bring forward BMPs, typically a treatment BMP, and demonstrate that the new BMP is
9 equivalent to those of the Stormwater Management Manuals issued by Ecology. A Board of
10 Reviewers is in place to consider new ideas or technology. As these are approved, Ecology is
11 poised to add the approved BMPs to the Stormwater Management Manuals (SWMMs) as it
12 updates the Manuals. The next such update will occur in the next one to two years. Ecology
13 does not, however, solicit or force reviews through the TAPE process—it is a market-driven
14 process for enhancing BMPs. PSA criticizes the lack of opportunity for public comment on
15 Ecology’s antidegradation plan. Ecology contends that there is a public comment opportunity
16 both through the granting of coverage to individual permittees, and as the ISGP itself is renewed
17 on five year cycles. Ecology also contends that both the adaptive management scheme of the
18 ISGP, and the permit renewal process offer the opportunity and incentive for new technology to
19 emerge, consistent with antidegradation rules. *Ex. E-12; Killelea Testimony, Moore Testimony.*

1 F. Monitoring Requirements

2 [49]

3 As with the previous permit, the ISGP requires permittees to obtain representative
4 samples on a quarterly basis, and from the first fall storm event of each year, at designated
5 sampling locations. *Condition S4.* Instead of allowing permittees to identify and monitor the
6 outfall with the highest concentration of pollutants, the new permit requires sampling of all
7 discharge points (unless substantially identical under Condition S4.B.2.c.). Ecology chose this
8 approach as technically superior in light of difficulties many permittees had in identifying
9 appropriate sampling points under the previous permit, and because it is consistent with EPA's
10 approach under the MSGP. Both the old permit and new permit allow averaging of samples on a
11 quarterly basis. If a permittee samples any pollutant at a designated sampling point more
12 frequently than required by the permit, the permittee must include the results in both the
13 calculation and data submitted on the Discharge Monitoring Report (DMR). *Condition S9.D.;*
14 *Killelea Testimony.*

15 [50]

16 The consistent attainment provisions of the 2010 ISGP were controversial, with wide
17 disagreement among stakeholders as to the appropriate number of samples needed to adequately
18 characterize site-specific stormwater discharges for purposes of suspending further sampling.
19 Ecology ultimately also chose to allow a facility to have the benefit of suspension of sampling
20 after four quarters of meeting benchmark values (consistent attainment), rather than the eight
21 quarters required under the previous version of the ISGP. This decision was based in part on

Ecology's recognition that the new permit imposed a greatly reduced copper benchmark applied

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1 across industrial sectors covered by the permit, as compared to the much higher copper
2 benchmark that only applied to certain permittees under the previous version of the permit. It
3 was also based on a desire to counterbalance the fact that the 2010 permit requires all discharge
4 points to be monitored (unless substantially similar), rather than just one outfall as the previous
5 permit required. Ecology's decision to reduce the number of samples from eight to four was not
6 based on any scientific or technical analysis, although one briefing paper the agency received
7 pointed out that seven samples are adequate to characterize a discharge. Ecology concluded that
8 lowering the number of quarters necessary to qualify for a suspension of sampling under the
9 consistent attainment provision would motivate facilities to achieve compliance, and thereby
10 reduce permittees' sampling costs. In response to permittees' concerns about having to re-
11 accumulate quarters of attainment under the new permit, the 2010 ISGP allows a facility to count
12 attainment of the benchmarks under the prior permit towards the four quarters needed under the
13 current version of the permit. Suspension of sampling based on consistent attainment is not
14 applicable to sampling at facilities subject to numeric effluent limitations based on 303(d)
15 listings, as set forth in Condition S5.C. This was a change from the previous permit, which made
16 the consistent attainment provisions available to all discharges, including those into 303(d)-listed
17 waters. *Exs. P-10, P-21; Killelea Testimony; Condition S9.D.*

18 [51]

19 PSA asserts the permit's monitoring provisions are inadequate in several respects. PSA
20 first states that the new consistent attainment provision (Condition S4.B.6.a.), which allows
21 suspension of sampling after four quarters, would lead to a substantial percentage of facilities
exceeding the benchmarks on an ongoing basis. PSA supports this position based on Dr.

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1 Horner’s review of monitoring data from the previous version of the ISGP, which indicates that
2 many facilities that achieved a benchmark for four consecutive sampling events later exceeded
3 the benchmark in future quarters. Dr. Horner’s own research also found that, for all parameters
4 but one that he studied, discharges can be adequately characterized after about twelve samples.
5 *Horner Testimony*. PSA also asserts that the permit provision that allows averaging of samples
6 (Condition S4.B.6.c.) invites manipulation by permittees who may modify facility operations
7 and/or sampling techniques to influence the average, a suggestion that one permittee,
8 Weyerhaeuser, calls “inconceivable.” *Johnson Testimony*. Finally PSA’s expert opines that he
9 would simply design “a thoroughly different program,” including a requirement to take a
10 minimum number of annual samples (10-12), and require analysis for dissolved as well as total
11 recoverable metals. *Horner Testimony*.

12 G. Adaptive Management/Corrective Action Requirements

13 [52]

14 Boeing and PSA both criticize the three-level adaptive management/corrective action
15 provisions of the ISGP contained at Condition S8., for different reasons. Boeing asserts the
16 provisions are vague and arbitrary, for failing to define when a permittee can “off-ramp” from an
17 endless series of unsuccessful attempts to meet the benchmarks. Boeing asserts that the ISGP
18 lacks adequate guidance or definition of the “waiver” provisions of the Level 2 and Level 3
19 corrective action requirements, which offer the permittee a way to show they are not violating
20 water quality standards even if they fail to meet benchmarks, among other purposes. Boeing
21 argues that Ecology’s position that a permittee must take continued steps to meet the benchmark
values of the permit, through implementation of the corrective action levels, effectively turns

1 those benchmarks into numeric effluent limitations, an arbitrary result. Taking issue with a
2 portion of the Board’s ruling in one summary judgment order, Boeing asserts that facilities that
3 have fully implemented BMPs described in Ecology’s SWMMs as part of a Level 3 corrective
4 action should not be expected to do more, and are by law, presumed to be compliant with water
5 quality standards.⁴

6 PSA criticizes the Condition S8. provisions as vague or too loosely written, asserting that
7 there are extended timeframes for completion of corrective actions, legally invalid bases for
8 waivers, and unacceptably vague terms, such as footnote 4 to Condition S8., that appears to
9 make it impossible for a permittee to ever move from a Level 2 to a Level 3 corrective action.
10 PSA criticizes the calendar year system of the corrective action scheme, which allows a “reset”
11 of benchmark exceedances for each year of the permit term. PSA complains that these
12 provisions do not require the permittee to ever meet the benchmarks, or specify consequences if
13 there is ongoing failure to do so after completion of prescribed corrective actions. PSA also
14 contends the waiver provisions excuse compliance with water quality standards, and are
15 therefore unlawful.

16 [53]

17 While the permit does not require mandatory compliance with benchmarks, it does
18 require timely implementation of corrective actions with the goal of achieving benchmarks in
19 future discharges. An exceedance of a benchmark value is not conclusive of a violation of water

20 ⁴ Boeing filed a Motion for Reconsideration of the Board’s Order on Summary Judgment, dated January 5, 2011,
21 (dismissing Legal Issues 31 and 62), and requested the opportunity to present factual evidence on questions related
to the proper role of benchmarks and their relationship to the corrective action levels of the permit. The Board
allowed Boeing to proceed to present testimony on this issue, but did not rule on the substance of the Motion. It is
addressed in the Conclusions of Law that follow.

1 quality standards. However, sampling results that show exceedances of the benchmark values
2 have the potential to violate, or may indicate a violation of, water quality standards. In
3 reviewing the draft ISGP, EPA commented that despite significant concerns in the regulated
4 community that the benchmarks of the ISGP were, in effect, numeric effluent limits, it was clear
5 to EPA that Ecology was not intending benchmarks to be such numeric limits. EPA commented
6 that like the MSGP, the benchmarks are intended to be used as an adaptive management
7 mechanism, triggering revisions to the SWPPP, and adoption of additional control measures
8 when benchmarks were exceeded. EPA notes that when a facility's monitoring data exceeds the
9 benchmark levels, "the facility can be in full compliance with the permit as long as it follows all
10 the corrective action and subsequent reporting steps." EPA recommended clarification in the
11 permit on this point. *Ex. P-21*. Corrective actions responsive to such benchmark exceedances
12 include revision of the SWPPP and implementation of additional BMPs, as prescribed at each
13 corrective action level. In Ecology's professional judgment, if a facility properly implements the
14 corrective actions required by the ISGP, it is likely to bring the facility's stormwater discharges
15 to at or below the benchmark level. If the permittee does not timely and correctly implement the
16 corrective action steps of the permit, or cannot meet the benchmark value after Level 3 corrective
17 action steps, Ecology has the option of issuing an Administrative Order or an individual permit
18 for discharges from a particular facility. The permittee can also request a waiver of the
19 requirements under Level 2 and Level 3, as discussed further below. *Killelea Testimony*.

20 [54]

21 The three level corrective action provisions of Condition S8. of the ISGP set out a
logical, increasingly stringent set of responses required of the permittee, should quarterly

1 samples reveal continued exceedances of applicable benchmark values. At a Level 1 corrective
2 action, a permittee would be expected to make incremental improvement in the application of
3 BMPs, such as more frequent vacuum sweeping, cleaning catch basins, or other housekeeping
4 items. Similarly, the Level 2 response expects additional source control BMPs, while the Level
5 3 requires installation of necessary treatment BMPS. At Level 3, the permittee must revise the
6 SWPPP, but with input and review of a licensed professional, which is intended to improve the
7 quality of the response at this level of corrective action (Condition S8.D.2.). The permit states
8 that Level 2 corrective actions are triggered by an exceedance of an applicable benchmark value
9 for a single parameter for any two quarters during a calendar year, and that Level 3 corrective
10 actions are triggered by an exceedance for any three quarter during a calendar year. Ecology
11 interprets this to mean that the permittee must look back for an entire calendar year in order to
12 determine whether it is at a Level 2 or Level 3 corrective action. Ecology intended that there be
13 alternating years for corrective action efforts by permittees in order to allow adequate time for
14 corrective actions to achieve their intended effect on discharges. Ecology also expects that a
15 permittee at a Level 3 corrective action will achieve compliance with the benchmark, and that
16 Ecology will be working with the permittee to evaluate the adequacy of the corrective action
17 response. In this iterative process between the agency and permittee, a decision can be made
18 whether an individual permit, more refined BMPs, or an administrative order are necessary.

19 *Killelea Testimony.*

20 [55]

21 While the permit itself, as well as Ecology's explanation of the meaning of the terms,
offers a rational escalation of corrective actions, the calendar year system of corrective actions is

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1 confusing, and offers extended timeframes for implementing corrective actions required by the
2 permit. The permit provides no deadline to initiate a response to a benchmark exceedance and
3 no time limit for the required revision of the SWPPP, so it is unclear when the implementation
4 steps begin. Once the SWPPP is revised, a permittee with two quarters of exceedances in one
5 calendar year, say 2011, has until September 2012 to implement the revised SWPPP. If the
6 facility then has three or more exceedances of a benchmark in 2012, it becomes unclear whether
7 the facility has until September of the next year, 2013, to wait to see the effectiveness of the
8 Level 2 response, or whether it must move to Level 3 if it has three more exceedances in 2013.
9 This result is possible due to the language of footnote 4 to the Level 2 Corrective Action
10 provision, which states that “[F]acilities that continue to exceed benchmarks after a Level 2
11 Corrective Action is triggered, but prior to the Level 2 Deadline, are not required to complete
12 another Level 2 or 3 Corrective Action the following year for the same parameter.” This could
13 be read to mean that a Level 3 corrective action cannot be triggered until three years after the
14 initial exceedances triggering the Level 2 response, even if a permittee consistently continues to
15 exceed the benchmarks every quarter thereafter.

16 [56]

17 The waiver provisions of the 2010 ISGP are a critical aspect of the benchmark and
18 adaptive management scheme of the ISGP. The waiver provisions allow a permittee to show that
19 they do not need to proceed with a required Level 2 or Level 3 response by demonstrating that
20 the installation of either structural source control or treatment BMPs “is not feasible or not
21 necessary to prevent discharges that may cause or contribute to a violation of a water quality
standard.” *Condition S8.C.4. and D.4.* The previous permit included a similar waiver provision,

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1 with the primary difference being that it required a permittee to demonstrate that the corrective
2 action was both infeasible *and* not necessary for compliance with water quality standards. *Ex. P-*
3 5. While the terms “feasible” and “necessary” are not defined in the permit (nor were they
4 defined in the previous permit), they have commonly understood meanings in this context.
5 Among other items, the waiver provisions allow a permittee to develop information to show they
6 are in compliance with water quality standards, even if they have had one or more discharges
7 that exceeded a permit benchmark. Ecology testified that a facility could base a waiver request
8 on a showing that a particular benchmark was too high for specific site conditions, that the
9 discharges did not cause or contribute to a water quality standards violation, or that water quality
10 standards are otherwise being met at the site. Such a showing may require a site-specific
11 analysis or receiving water study before the facility can show there is no need to implement
12 either structural source control or treatment BMPs to avoid discharges that may cause or
13 contribute to violation of water quality standards. While economic feasibility will not be
14 allowed as a basis for a waiver from permit corrective action requirements, Ecology has
15 identified other feasibility considerations that may form the basis for a valid waiver request, such
16 as when a permittee operates at a leased facility and the lessor will not allow necessary
17 alterations at the site. Weyerhaeuser testified it understood the kind of data it would need to
18 qualify for a waiver under this term of the ISGP, and that it did not need additional guidance.
19 Boeing criticizes the waivers as vague and uncertain in application. *Killelea Testimony,*
20 *Johnson Testimony, Oleson Testimony.*

1 [57]

2 Ecology has provided some informal guidance as to how to apply the provisions of
3 Condition S8. that allows “waivers” from the requirements for installing or implementing
4 structural source control or treatment BMPs under the Level 2 and Level 3 corrective action
5 provisions of the permit. Ecology has not finalized guidance for its own staff in applying this
6 provision, in part because the agency does not expect any request for waivers until later in the
7 permit cycle, and has time to develop further guidance. *Killelea Testimony.*

8 [58]

9 PSA is an organization that works to protect and preserve Puget Sound. Columbia
10 Riverkeeper has a similar mission to protect and restore the Columbia River and its tributaries.
11 Olympians for Public Accountability work for accountability of public agencies involved in toxic
12 cleanup issues in the Olympia area. The Executive Director of PSA is a member of each of these
13 organizations, and makes personal use of the recreational opportunities in the Puget Sound
14 region. *Wilke Testimony.* No party has contested the standing of PSA and the other
15 organizations to bring this appeal. Copper Groups presented no testimony regarding the standing
16 of its organizations to bring this appeal. However, the standing of Copper Groups was raised as
17 an issue for the first time in closing arguments.

18 Any Conclusion of Law deemed a Finding of Fact is hereby adopted as such.

19 ///

20 ///

21 ///

1 CONCLUSIONS OF LAW

2 A. Standard of Review

3 [1]

4 The Board has jurisdiction over the subject matter and parties pursuant to RCW
5 43.21B.110. The Board reviews the issues raised in an appeal *de novo*. WAC 371-08-485(1).
6 The burden is on the appealing party as to each issue. WAC 371-08-485(3). Pursuant to WAC
7 371-080-540(2), in those cases where the Board determines that Ecology has issued a permit
8 “that is invalid in any respect,” the Board shall order the agency to reissue the permit, consistent
9 with applicable statutes and guidelines. *PSA v. Ecology*, PCHB Nos. 07-022, 07-023 (February
10 2, 2009) (Phase II Municipal Stormwater Permit Decision).

11 [2]

12 RCW 90.48.260 authorizes Ecology to implement and enforce all programs necessary to
13 comply with the Clean Water Act (CWA), 33 U.S.C. § 1251 *et seq.* Such powers include the
14 authority to administer the NPDES permit program (Ch. 173-220 WAC) and to establish water
15 quality standards for both surface water and groundwater (Ch. 173-201A and Ch. 173-200
16 WAC). The ISGP is required under both the CWA, and state law authority which requires a
17 discharge permit for the disposal of any waste material into waters of the state by any type of
18 commercial or industrial operation. 33 U.S.C. § 1342(p)(2)(B); RCW 90.48.160. The ISGP is
19 also a State Waste Discharge Permit that operates to protect groundwater from stormwater
20 discharged or infiltrated to groundwater under the authority of RCW Chapter 90.48. *Condition*
21 *SI.E.*

1 [3]

2 The Pollution Control Hearings Board must provide due deference to the specialized
3 knowledge and expertise of Ecology on technical issues and judgments. *Port of Seattle v.*
4 *Pollution Control Hearings Board*, 151 Wn.2d 568, 595, 90 P.3d 659 (2004). In the appeal of
5 the ISGP, the Board concludes that some of the terms of the ISGP are particularly technically
6 complex, and required Ecology to consider and weigh complex science, and often competing
7 expert opinions and views on the best approach to manage industrial stormwater. Accordingly,
8 we give deference to Ecology on several of the most technical aspects of the unique terms of the
9 ISGP. Similarly, Ecology’s interpretations of water quality statutes and its own regulations are
10 entitled to great weight, unless such interpretation conflicts with the statute’s plain language. In
11 several instances, we give deference to Ecology’s interpretation of relevant regulations. *Port of*
12 *Seattle* at 593-594.

13 [4]

14 Section 402(o)(1) of the CWA (33 U.S.C. § 1342(o)) states that an NPDES permit may
15 not contain effluent limitations which are less stringent than the previous permit, with certain
16 exceptions. In addition to challenging a number of permit terms as invalid or arbitrary, PSA has
17 asserted that some conditions of the ISGP are less stringent, or represent impermissible
18 backsliding in violation of the CWA. Ecology argued on summary judgment that if the Board
19 were to find certain aspects of the ISGP less stringent, Ecology may still act to correct a
20 “technical mistake” in the previous effluent limitation, under 33 U.S.C. § 1342(o)(2)(B)(ii). The
21 Board addresses both the backsliding and other arguments about these permit terms in the
following conclusions.

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1 B. Framework of the ISGP

2 [5]

3 Boeing and PSA have each presented evidence and argued that the basic framework of
4 the ISGP with its reliance on a combination of various effluent limitations, including both
5 benchmarks and numeric effluent limitations for certain discharges, is invalid or arbitrary and
6 capricious. Each Appellant makes related and different arguments that the adaptive
7 management/corrective action scheme that drives compliance with benchmarks and water quality
8 standards is also flawed and should be corrected by the Board. The Board therefore first
9 addresses conclusions related to the permit's overall framework, then addresses challenges to
10 individual terms and conditions of the permit.

11 [6]

12 The CWA and state law require Ecology to implement a program of control for industrial
13 stormwater discharges that meets applicable water quality standards. 33 U.S.C. § 1311, §
14 1342(p)(3)(A); RCW 90.48.080. State surface water quality regulations also protect existing
15 water quality and preserve designated beneficial uses of the surface waters, requiring discharge
16 permits to be conditioned such that the discharge will not cause or contribute to a violation of
17 established water quality standards. Ch. 173-201A WAC. The Board has consistently held in
18 the context of other general permit appeals that NPDES permits must contain conditions to
19 ensure that dischargers meet water quality standards. *Associated General Contractors v.*
20 *Ecology*, PCHB Nos. 05-157, 158, 159 (2007), COL 4. To do this, general permits such as the
21 ISGP currently establish a combination of narrative effluent limitations, benchmarks and
numeric effluent limitations for various pollutant parameters. The permit establishes an adaptive

1 management/corrective action scheme that is the method to drive ultimate, and required,
2 compliance with water quality standards. The role of benchmarks in this scheme is once again at
3 issue in this case. In the context of the Construction Stormwater General Permit, we interpreted
4 RCW 90.48.555(8), which requires an enforceable adaptive management mechanism in both the
5 industrial and construction stormwater general permits, as follows: “A benchmark is not a
6 numeric effluent limitation, even if it is stated in numeric terms. Exceedances of the benchmark
7 are not permit violations. Rather, the benchmark is a threshold or indicator value. When that
8 threshold is reached, a permittee must implement a responsive protocol....” *Id.* at COL 22.

9 [7]

10 To meet the requirements of the CWA and state law, the ISGP contains both technology-
11 based and water quality-based effluent limitations, which are two different kinds of restrictions
12 on the quantity, rate, and concentration of pollutants that are discharged in the stormwater from
13 industrial facilities. The Clean Water Act requires that stormwater discharges from existing
14 industrial facilities meet technology-based effluent limitations that reflect the technological and
15 economic capability of permittees to control pollutants in discharges. 33 U.S.C. § 1342(a). They
16 are also based on State law that requires the use of AKART. RCW 90.48.010. NPDES permits,
17 including the ISGP, may express these effluent limitations as either numeric or, if numeric limits
18 are considered “infeasible,” non-numeric narrative standards, or as a combination of numeric and
19 narrative effluent limitations. RCW 90.48.555(2); 40 C.F.R. § 122.44(k)(3). Because of the
20 variable and intermittent nature of stormwater, both EPA and Ecology determined that it is not
21 feasible to calculate numeric, technology-based effluent limitations for many of the discharges

covered under the ISGP. Accordingly, Ecology included many non-numeric narrative

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1 limitations in the permit. These technology-based effluent limits are reflected in those conditions
2 of the ISGP, for example, that require implementation of a SWPPP, and implementation of best
3 management practices to prevent and control stormwater runoff. *Condition S3.; Fact Sheet, pp.*
4 *38-42.*

5 [8]

6 RCW 90.48.555(1), and federal regulations at 40 CFR Part 122.44, require the ISGP
7 include water quality-based effluent limitations if there is a reasonable potential to cause or
8 contribute to an excursion of a state water quality standard. RCW 90.48.555(3) requires that
9 Ecology condition the ISGP to require compliance with numeric effluent discharge limits where
10 the department has determined that stormwater discharges have a reasonable potential to cause or
11 contribute to violation of state water quality standards, and effluent limitations based on
12 nonnumeric BMPs are not effective in achieving compliance with water quality standards. As
13 we concluded in an earlier Order on Summary Judgment, Ecology made a determination that
14 stormwater discharges from industrial facilities, on a general and ongoing basis, may cause, or
15 have a reasonable potential to cause a violation of water quality standards for a variety of
16 pollutant parameters. *Order on Summary Judgment, December 23, 2010; Killelea Testimony.*
17 *Fact Sheet at 48.* We conclude that such a generalized “reasonable potential analysis” is
18 appropriate in the context of a general permit, where, as here, there is significant background
19 information about the nature of industrial and urban runoff, sufficient to inform Ecology’s
20 conclusions in this regard (*see, e.g., Ex. B-35, the 2006 EnviroVision/Herrera Evaluation*). We
21 also conclude that Ecology appropriately complied with these statutory and regulatory

1 narrative forms, as follows: numeric effluent limitations for discharges to 303(d)-listed water
2 bodies at (Condition S6.C., Table 5); requirements for facilities to comply with TMDLs
3 (Condition S6.D.); adaptive management response provisions, which require facilities that
4 exceed numerically-stated benchmark values to implement escalating levels of source control
5 and treatment BMPs (Conditions S5.A. and B., and S8.); prohibitions on discharges that violate
6 listed water quality surface, groundwater, sediment standards, or human health-based criteria
7 (Condition S10.); and finally, solid and liquid waste management provisions.(Condition S12.).

8 [9]

9 In addition to the requirements to develop effluent limitations in response to a reasonable
10 potential analysis, RCW 90.58.555 (7) provides further, and specific direction to Ecology to
11 require compliance with “appropriately derived numeric water quality-based effluent limitations
12 for existing discharges to water bodies listed as impaired according to 33 U.S.C. Sec. 1313(d)
13 (Sec. 303(d) of the federal clean water act, 33 U.S.C. Sec. 1251 et seq.).” The permit complies
14 with this requirement by including numeric effluent limitations applicable to discharges to
15 303(d)-listed waters for a number of different parameters, including, TSS, fecal coliform, and
16 others that are not in dispute in this case. *Condition S6., Table 5.* Whether such limitations are
17 “appropriately derived,” and whether additional numeric limitations should have been included,
18 is addressed later in this opinion, the Board having ruled on summary judgment that there were
19 questions of fact related to the specific limitations contained in Condition S6. *Order on*
20 *Summary Judgment, December 23, 2010.*

1 [10]

2 RCW 90 48.555 (8) requires the ISGP to include “an enforceable adaptive management
3 mechanism that includes appropriate monitoring, evaluation, and reporting.” At a minimum, the
4 adaptive management mechanisms must include an indicator, such as *monitoring benchmarks*,
5 monitoring, review and revisions to stormwater pollution prevention plans, documentation of
6 remedial actions taken, and reporting to Ecology. RCW 90.48.555(8)(a)(i)-(v) (*emphasis*
7 *added*). The adaptive management/corrective action scheme of the ISGP (Condition S8.) goes
8 hand-in-hand with the benchmark provisions of the permit, and together they form a key
9 narrative effluent limitation for the ISGP, requiring industrial facilities to take steps to ensure
10 compliance with water quality standards.

11 [11]

12 In the remand of the 2005 Boatyard General Permit, the Board ordered that the permit be
13 modified to require implementation of remedial actions required at the three corrective action
14 levels set out in that permit. The Board stated that the permit must “explicitly require that
15 permittees must continue implementing required remedial actions unless and until the
16 benchmarks and other limits are achieved,” and further required the permit to address the
17 contingency that implementation of all BMPs and corrective actions might fail to achieve the
18 benchmarks. Ecology was directed to include provisions specifying that the agency may require
19 individual, site-specific conditions, such as additional BMPs, numeric limits, or compliance
20 schedules, or an individual NPDES permit. While the Board did not construe the benchmark as a
21 numeric effluent limitation, or nonattainment of a benchmark as a permit violation, the Board
nonetheless required Ecology to modify the permit to specify further actions Ecology would take

1 in response to continued failure of a permittee to achieve the benchmark. *PSA v. Northwest*
2 *Marine Trade Association*, PCHB Nos. 05-150, 05-151, 06-034, 06-040, at pp. 65-66 January
3 26, 2007.

4 [12]

5 We see no reason to depart from these decisions at this time. The Board concludes that
6 the ISGP's combination of benchmarks that trigger an adaptive management response, narrative
7 effluent limitations, and numeric effluent limitations for defined parameters applicable to
8 discharges to 303(d)-listed waters, is a valid and lawful framework for regulating industrial
9 stormwater discharges at this time. This framework correctly implements specific provisions of
10 RCW 90.48.555, discussed above, and complies with the Clean Water Act, even if we find
11 specific provisions invalid in some respect. Subject to the more detailed discussion below of
12 specific benchmark, numeric limits, and other permit issues, the Board rejects PSA's assertion
13 that the ISGP framework is inadequate and should be based on more extensive numeric effluent
14 limitations. We also reject Boeing assertion that the permit framework should have more
15 flexible benchmarks, or that it is premature to establish such benchmarks due to lack of adequate
16 data.

17 C. Validity of Benchmarks

18 [13]

19 The Board concludes that none of the Appellants have met their burden to demonstrate
20 that the copper and zinc benchmarks of the ISGP are invalid, arbitrary and capricious, or in
21 violation of applicable law. The Board concludes that Ecology developed a rational method to
reach a reasonable and achievable benchmark for copper. As the level of professional

1 disagreement indicates, there is considerable room for debate about the appropriate benchmark
2 level for copper, and the precise levels at which the benchmark will protect beneficial uses, or
3 become overly burdensome or overly protective of receiving waters.

4 [14]

5 We conclude that the copper benchmark was set in consideration of both the effects on
6 beneficial uses in the receiving water, and in particular, the effects on salmonid fish, as it should
7 have been. At the same time, Ecology concluded that in order to meet the benchmarks of the
8 permit, a facility would have to be implementing AKART. Ecology also applied the dilution
9 factor of 5 in a manner distinct from methods used in some other permitting contexts, using it as
10 a method to inform the agency as to the probability of violating water quality standards, should
11 the benchmark for copper be set at varying levels. In this respect, Ecology used the dilution
12 factor, not to justify artificially high benchmarks, but rather to assess the effectiveness of the
13 benchmark value, from both the perspective of protection of beneficial uses and the ability of
14 industrial facilities to meet the benchmark. We conclude that consideration of the effects of
15 receiving water dilution and chemistry on the toxicity of discharges in the manner accomplished
16 by the Herrera report is not equivalent to granting a mixing zone under WAC 173-201A-400. In
17 this case, the dilution factor was not used to allow a violation of water quality standards in an
18 area of the receiving water. Instead, the Herrera analysis recognized some dilution would occur
19 in receiving water, and provided Ecology data to assess at what level a benchmark would be
20 protective of beneficial uses in the vast majority of conditions. This is a valid and lawful
21 approach.

1 [15]

2 We also conclude that Ecology was not required to use either the biotic ligand model
3 (BLM), or a water effects ratio (WER) in setting the copper benchmark. Neither of these
4 approaches is consistent with the current water quality standards of Washington, implemented at
5 WAC 173-201A. While the BLM may be the approach of the future, particularly as a new basis
6 to set the copper criteria in state water quality standards (as opposed to at the permit stage), it has
7 yet to be adopted in Washington, or any other state, and state water quality regulations for copper
8 remain hardness-based. Ecology correctly relied on existing water quality standard
9 methodologies to formulate the copper benchmark, as did the Herrera analysis that provided the
10 foundation for Ecology's decision on the copper benchmark.

11 [16]

12 It was neither an abuse of discretion nor arbitrary and capricious for Ecology to decline to
13 apply a WER in the development of the copper benchmark. Not only is the use of a WER
14 generally limited to site-specific application, EPA has put limits on Ecology's use of a WER to
15 modify the water quality standards for particular water bodies or discharges. Ecology's
16 interpretation of the water quality standards, including the limits placed thereon by EPA, is
17 entitled to great weight, and we give deference to Ecology's interpretation of WAC 173-201A-
18 240 (footnote dd) and how to apply it in the context of a general permit. The Board also
19 distinguishes the facts and conclusions here from those before the Board in the appeal of the
20 2005 Boatyard General Permit. *PSA v. Northwest Marine Trade Assc., supra*. In that case the
21 Board held that the methodology used to establish the copper benchmark relied on several flawed
and unfounded factors to establish a benchmark that was many times higher than the water

1 quality criteria for copper, and invalidated the copper benchmark. The Board concluded that
2 although Ecology had not applied required prerequisites to the use of a WER, Appellant PSA had
3 not presented adequate evidence that the WER values that Ecology had relied were not
4 representative of western Washington waters. Since that time, EPA has put further limits on the
5 use of the WER to adjust water quality criteria. Thus, while the Board's conclusion allowed a
6 limited use of a WER in the Boatyard General Permit to account for the mitigation effects of
7 receiving water quality on the toxicity of metals in stormwater discharges, the case does not
8 stand for as broad a proposition as advanced by Copper Groups. We conclude that Ecology
9 more correctly accounted for the effects of receiving water chemistry on copper through the
10 analysis contained in the Herrera report.

11 [17]

12 The Board concludes that the new COD and TSS benchmarks for the timber and paper
13 industry and paper and allied products industries are valid, and supported in relevant science and
14 literature. There was little dispute that COD itself is the more accurate measure of oxygen
15 demanding substances in the water, and even PSA's expert had no quarrel that COD was the
16 preferable benchmark parameter, not BOD. We also conclude that the COD benchmark value
17 (120 mg/l) is not less demanding than the lower BOD benchmark of the previous permit (30
18 mg/l). Relevant studies and site specific sampling results demonstrate that a COD benchmark
19 that is four times higher than the BOD benchmark offers equivalent protection to receiving
20 waters. With the addition of a second benchmark for TSS (100 mg/l), we conclude that this
21 industrial sector is subject to more stringent permit requirements with this iteration of the ISGP.

The ISGP does not represent backsliding in this respect, as argued by PSA.

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1 [18]

2 The Board concludes that the new benchmark of “no visible oil sheen” is a valid
3 benchmark, and does not represent backsliding from the prior permit’s numerically stated
4 benchmark of 15mg/l for oil and grease. The Board is satisfied that Ecology has valid, well-
5 based reasons to change to a benchmark based on “no visible sheen,” and has improved the
6 permit over the last iteration by adding a second, related benchmark of for TPH for certain
7 higher risk industries. *Condition S5.A. (Table 3).*

8 D. Numeric Effluent Limitations for Discharges to 303(d)-Listed Waters

9 [19]

10 RCW 90.48.555(7) addresses effluent limitations for existing discharges to water bodies
11 listed as impaired under the CWA. It states as follows:

12 (7)(a) By November 1, 2009, the department shall modify or reissue the industrial storm
13 water general permit *to require compliance with appropriately derived numeric water*
14 *quality-based effluent limitations for existing discharges to water bodies listed as*
impaired according to 33 U.S.C. Sec. 1313(d) (Sec. 303(d) of the federal clean water act,
33 U.S.C. Sec. 1251 et seq.).

15 (b) The industrial storm water general permit must require permittees to comply
16 with appropriately derived numeric water quality-based effluent limitations in the
17 permit, as described in (a) of this subsection, by no later than six months after the
effective date of the modified or reissued industrial storm water general permit.

18 On summary judgment, the Board concluded that RCW 90.48.555(7) clearly and
19 unambiguously requires Ecology to include in the ISGP “appropriately derived” numeric water
20 quality-based effluent limitations for discharges to 303(d)-listed water bodies. The Board noted
21 that the statutory requirement of sub-section (7) embodies the assumption that impaired water
bodies do not meet water quality standards, and that further discharges will continue to

1 contribute to such impairment. We held there were factual questions as to whether or not
2 Ecology could appropriately derive such limitations with respect to several pollutants that are
3 associated with impaired water bodies. Boeing and PSA challenge different aspects of the
4 effluent limitations applicable to discharges to 303(d)-listed waters. Boeing asserts the fecal
5 coliform bacteria limit and the TSS limit are invalid, for different reasons. PSA argues that
6 Ecology violated RCW 90.48.555(7) by excluding effluent limitations for dissolved oxygen,
7 temperature, and fish tissue/bioassay, as many water bodies are listed as impaired for these
8 parameters.

9 [20]

10 The Board concludes that the TSS effluent limitation applicable to discharges to 303(d)-
11 listed waters is valid and was appropriately derived under RCW 90.48.555(7). In arriving at this
12 limitation, Ecology evaluated several options to address the likelihood that discharges from
13 industrial sites lead to violation of sediment quality standards and recontamination of sites
14 already being addressed under the Toxics Clean-up Program. The effluent standard selected, at
15 30 mg/L is not an unreasonable standard, nor does it impose inordinately high costs on the
16 regulated community, as did other options considered and rejected by Ecology. We give
17 deference to Ecology's conclusion that TSS is a reasonable surrogate to regulate discharges to
18 water bodies that are 303(d)-listed for sediment quality parameters, allowing an effective way to
19 begin to control sediment contamination problems identified by Ecology.

20 [21]

21 Boeing has not met its burden to demonstrate that the fecal coliform bacteria effluent
limitation for discharges to 303(d)-listed water bodies is invalid. Ecology developed this

1 limitation because many segments of water bodies have been listed as impaired for fecal
2 coliform. Because Ecology could “appropriately derive” an effluent limitation based on existing
3 water quality criteria, and it is an easily applied standard, the numeric effluent limitation is
4 required under RCW 90.48.555(7). Other than disagreeing with the need to monitor for this
5 parameter, no persuasive evidence was offered to show that the fecal coliform effluent limitation
6 could not be “appropriately derived” or was otherwise unsupportable.

7 [22]

8 The Board concludes that Ecology did not err in omitting numeric effluent limitations for
9 discharges to water bodies impaired due to temperature, dissolved oxygen and fish tissue
10 contamination or bioassessment. Ecology was unable to “appropriately derive” such limitations
11 as called for in the statute because in each case, the agency could not reasonably correlate the
12 discharge from an industrial facility with the impairment or water quality problem. Because of
13 this, Ecology lacked a science-based method to define a fair or rational numeric effluent
14 limitation with respect to each of these parameters. With respect to dissolved oxygen and
15 temperature, Ecology could not come up with a defensible effluent limitation number because it
16 is not the stormwater discharge itself causing the impairment in the water body. In the case of
17 dissolved oxygen, it is the oxygen-demanding substances that cause the DO impairment, and
18 setting dissolved oxygen effluent limitation fails to address the impairment problem. It was also
19 reasonable for Ecology to conclude that it made little sense to set an effluent limitation for
20 temperature, on the basis that it is a seasonal impairment problem, and again, a problem that
21 could not be correlated with industrial stormwater discharges. Setting an effluent limitation
under such circumstances would not be based in any supportable science. Ecology was also

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1 unable to defensibly tie industrial stormwater discharges to pollutants that bioaccumulate in fish
2 tissue, again supporting the decision to omit numeric limits for this parameter. In the face of
3 this evidence, we conclude that Ecology met the requirements of RCW 90.48.555(7), as the
4 agency could not, at this time, “appropriately derive” numeric water quality-based effluent
5 limitations for these three types of industrial discharges to impaired water bodies.

6 [23]

7 As discussed above with respect to the omission of a DO effluent limitation, the Board
8 also concludes that it was neither invalid, nor impermissible backsliding, for Ecology to not
9 include a DO benchmark for the same 80 facilities that had such a benchmark in the previous
10 permit. Some unspecified number of these same facilities will be subject to the new COD and
11 TSS benchmarks. Elimination of the DO benchmark on the basis discussed in the findings of
12 fact, that it is a nearly irrelevant measure of the actual problem in the water body, is a legitimate
13 basis upon which to modify the ISGP on a going-forward basis. A permit is not made less
14 stringent by elimination of a condition that provided no meaningful information about
15 impairment or water quality in receiving waters.

16 [24]

17 The Board concludes that the manner in which Ecology addressed TMDLs in the permit
18 is valid. At this point in time, no industrial facilities covered by the ISGP are subject to
19 additional sampling or effluent limitations related to TMDLs, in large part because these
20 facilities are viewed as a small, de minimis source of the pollution contributing to the impaired
21 state of the water body and the need for a TMDL. As with temperature and DO, Ecology faces
substantial difficulty in defining a particular pollutant discharge limitation for a specific

1 industrial discharge. PSA’s case on this issue is primarily one of a criticism of water resource
2 policy approach by Ecology, and not something the Board believes can be addressed in the
3 context of the challenge to a General Permit. Indeed, it would be inappropriate for the Board to
4 direct Ecology to set a wasteload allocation in relation to a TMDL as part of a remedy in an
5 appeal of a general permit, and we have no basis to do so.

6 E. Compliance with Antidegradation Requirements

7 [25]

8 As the Board discussed on summary judgment, the purposes of Washington’s
9 Antidegradation Policy, as set forth in WAC 173-201A Part III, are several. First, the policy
10 seeks to maintain and restore the highest possible quality of surface waters in the State. The
11 policy also describes situations under which water quality may be lowered from its current
12 condition. The policy applies to human activities that are likely to lower the water quality of
13 surface water and ensures that such activities apply AKART. To achieve these ends, the policy
14 applies three “tiers” of protection for surface waters. WAC 173-201A-300. Tier I applies water
15 quality-based limitations to point source discharges. Tier II seeks to protect waters of higher
16 quality than the water quality standards by requiring a more detailed analysis (the Tier II
17 analysis) for any new or expanded actions that are expected to cause a measureable change in the
18 quality of the water body. Tier III prevents the degradation of waters formally listed as
19 “outstanding resource waters” and applies to all sources of pollution. At issue in this case is
20 compliance with the Tier II analysis requirements.

1 [26]

2 The rule governing the Tier II analysis requirements allows an alternative method of
3 compliance for general permits, where those permits have a formal adaptive process “to select,
4 develop, adopt, and refine control practices for protecting water quality.” The adaptive process
5 must ensure that information is developed and used expeditiously to revise permit or program
6 requirements. Among other requirements, the plan under this section must be developed and
7 documented in advance of permit or program approval. WAC 173-201A-320(6)(c)(i)-(iii). The
8 relevant portion of the rule provides as follows:

9 c) The department recognizes that many water quality protection
10 programs and their associated control technologies are in a
11 continual state of improvement and development. As a result,
12 information regarding the existence, effectiveness, or costs of
13 control practices for reducing pollution and meeting the water
14 quality standards may be incomplete. *In these instances, the
antidegradation requirements of this section can be considered met
for general permits and programs that have a formal process to
select, develop, adopt, and refine control practices for protecting
water quality and meeting the intent of this section.* This adaptive
process must:

15 (i) Ensure that information is developed and used expeditiously to
16 revise permit or program requirements;

17 (ii) Review and refine management and control programs in cycles
not to exceed five years or the period of permit reissuance; and

18 (iii) Include a plan that describes how information will be obtained
19 and used to ensure full compliance with this chapter. *The plan must
be developed and documented in advance of permit or program
approval under this section.*

20 WAC 173-201A-320(6) (*emphasis added*).
21

1 [27]

2 On summary judgment, the Board concluded that PSA had shown a likelihood of success
3 on the merits on the question of whether Ecology had complied with antidegradation rules at the
4 time of issuance of the ISGP. The Board reached this conclusion because at the time Ecology
5 issued the ISGP, there was no adaptive process in place as required by the antidegradation rule.
6 WAC 173-201A-320(6)(iii). The TAPE process, referred to in the permit's Fact Sheet as the
7 basis for compliance, had been discontinued by Ecology. Although planning may have begun
8 for a transition to a new TAPE process, the record before the Board on summary judgment
9 indicated that it was not currently operational. The Board also expressed substantial concerns as
10 to whether the TAPE process, even if it were in place, had results or outcomes that were "used
11 expeditiously" to revise this, or future, iterations of the General Permit, as the rule requires. The
12 Board concluded that Ecology had failed to meet its burden in response to PSA's motion. The
13 Board entered a stay which prohibited Ecology from granting coverage under the ISGP for new
14 or expanded actions until there was compliance with Tier II antidegradation requirements. The
15 matter was set over for hearing, to allow Ecology to demonstrate it had come into compliance
16 with the antidegradation rule.

17 [28]

18 At hearing Ecology contended that it had complied with the antidegradation rule, and the
19 alternative process allowed for general permits, in three ways. First, Ecology has resumed the
20 TAPE process, which encourages development of pilot or emerging technologies. Second, the
21 adaptive management scheme of the ISGP allows assessment of existing and developing BMPs.

Third, Ecology regularly updates the agency's Stormwater Management Manual to capture these
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1 new and developing BMPs, making them more widely available to the regulated community.
2 Ecology also asserts that the public comment aspects of the antidegradation regulation have been
3 met, not just by the initial opportunity to comment on the draft ISGP, which relied on TAPE and
4 described the adaptive management permit scheme, but also as coverage is granted to any facility
5 with a new or expanded operation.

6 [29]

7 After hearing on the merits, the Board concludes that Ecology has complied with the Tier
8 II antidegradation requirements, and that the previously issued Stay should be dissolved. In
9 2009, after discontinuance of the TAPE program, the Legislature directed Ecology to create a
10 Stormwater Technical Resource Center to provide tools for stormwater management, as funding
11 becomes available. RCW 90.48.545. Initial funding has allowed this effort to proceed through
12 TAPE, and the process described in the original Fact Sheet and public notice has resumed after
13 an initial delay. We also give deference to Ecology's interpretation of WAC 173-201A-320(6)
14 and how it should be applied in the context of general permits. It is reasonable and valid for
15 Ecology to conclude that this rule allows the adaptive management scheme of the permit,
16 combined with regular updates of the SWMM which capture new and emerging technologies, to
17 stand as the method to comply with antidegradation requirements in the general permit context.

18 F. Monitoring and Sampling Provisions

19 [30]

20 The Board concludes that the general sampling requirements of the ISGP are valid, both
21 with respect to the amount of required sampling, and the provisions that allow averaging of such
samples. The quarterly sampling regime now requires sampling of all discharge points, unless

1 they are substantially identical, an improvement over the approach of the last permit, which
2 allowed the permittee to monitor the outfall with the highest concentration of pollutants, an
3 uncertain endeavor when it comes to variable stormwater discharges. We also conclude that the
4 sampling provision that allows permittees monitoring more than once per quarter to average all
5 the monitoring results for each parameter to be valid. *Condition S4.B.6.c.* PSA's argument that
6 this averaging provision will invite manipulation is not well-founded, because those permittees
7 who take advantage of the sample averaging provision must provide Ecology the results of both
8 the averaging calculation and documentation related to all samples taken. *Condition S9.D.*
9 Moreover, should a given facility wish to ignore the requirements of the permit in favor of
10 manipulation of sampling results, a speculative proposition at best, Ecology could take
11 enforcement action. However, the remote possibility of such behavior on the part of a rogue
12 facility does not render the permit's sampling scheme invalid.

13 [31]

14 We conclude the consistent attainment provision of Condition S4.B.6., which allows a
15 permittee to suspend sampling after four consecutive quarters of sampling demonstrate a
16 reported value equal to or less than the benchmark value is invalid, and appears to have been
17 somewhat arbitrarily selected by Ecology. Although the consistent attainment provision is not
18 applicable to sampling at facilities subject to numeric effluent limitations for discharges to
19 303(d)-listed waters, the last permit required a full eight quarters of sampling of applicable
20 parameters before a permittee could take advantage of this provision. Ecology's decision to
21 reduce the number of quarters necessary to achieve consistent attainment is not based on any
data, nor on an underlying assessment of how many compliant sampling periods are reasonably

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1 predictive of future attainment of benchmarks. Ecology recognized this in the Fact Sheet for the
2 draft permit (p. 70), concluding “four samples are not sufficient to adequately characterize the
3 discharge from a facility,” while an internal briefing paper stated that seven samples are
4 adequate. Some limited evidence before the Board suggests a relatively large percentage of
5 facilities will again exceed benchmarks after a period of four quarters of attainment of
6 benchmarks for particular pollutant parameters (*Horner Testimony*). Given the variable nature of
7 stormwater, allowing a suspension of sampling for the remainder of a five year permit term
8 based on only four quarters does not appear to be designed to achieve compliance with
9 benchmarks, and may lead to violations of water quality standards. While the Board concludes
10 that it is reasonable to “carry forward” quarters of attainment of benchmarks from the prior
11 permit period and count those toward consistent attainment under the current permit, we
12 conclude that at least seven quarters of meeting benchmark values should be expected prior to a
13 suspension of sampling for the remainder of the permit term. Alternatively, the permit could
14 allow a fewer number of quarters to serve as the basis for a determination of consistent
15 attainment (such as four quarters), but require a resumption of sampling within a reasonable time
16 frame within this permit term (two to three years appears reasonable, given the five year permit
17 cycle). We leave it to Ecology’s discretion which of these two approaches will work best in the
18 application of the ISGP. We remand the consistent attainment provision of S4B.6. to Ecology
19 for amendment consistent with this opinion.

1 G. Adaptive Management/Corrective Action Provisions

2 [32]

3 The Board concludes that portions of Condition S8. lack elements necessary for true
4 adaptive management as required by RCW 90.48.555(8) and present unduly vague and confusing
5 terms that result in unreasonable delays and questionable enforceability. We therefore conclude
6 that Condition S8. is invalid in several respects explained below and remand this aspect of the
7 permit to Ecology for modification consistent with this opinion. First, we conclude the permit
8 must include a reasonably short time frame within which a permittee must initiate an
9 investigation of a benchmark exceedence and revise its SWPPP accordingly, a step currently
10 missing from the permit. With such a timeframe in place, it is then reasonable for the permit to
11 require a permittee to “fully implement” the revised SWPPP “as soon as possible.” We also
12 conclude that the deadline for implementation of a Level 2 corrective action (September 30 of
13 the following calendar year) is excessively long and must be shortened. As currently written, the
14 timeframe provides a permittee up to one and one half years of the five year permit cycle to
15 implement a Level 2 corrective action, depending on when during the calendar year the
16 benchmark exceedences occur. When read in conjunction with footnote 4 (ISGP, p. 35), the
17 permit’s current language would allow a permittee to register as many as ten benchmark
18 exceedences over a period of three years without ever triggering a Level 3 response.⁵ In the
19 absence of any evidence that structural source control BMPs typically require this long to

20 _____
21 ⁵ Y1: two exceedences in the first two quarters, but none in 3Q or 4Q; Y2: permittee implements the Level 2 response by September 30, but has four additional exceedences during this year, which do not trigger either another Level 2 or a Level 3 response per footnote 4; Y3: permittee continues to exceed the benchmark each quarter, but is “not required to complete another Level 2 or Level 3 Corrective Action *the following year* for the same parameter.” ISGP, Footnote 4, p. 35 (emphasis added).

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1 implement, become effective, and be evaluated, this timeframe is unreasonably long. We
2 conclude that footnote 4 must be eliminated and that the permit must clarify when and how a
3 permittee escalates from a Level 2 to a Level 3 when a Level 2 corrective action is already
4 underway.

5 [33]

6 The Board concludes that the waiver provisions of Condition S8. are valid. Although
7 Ecology has not yet issued guidance on how to apply this provision, the terms of the permit are
8 commonly used words, capable of application by the regulated community. Ecology has
9 testified that the term “feasibility” under the waiver provisions will not include “economic
10 feasibility” to excuse a permittee’s compliance with the corrective action provisions due to the
11 cost of structural or treatment BMPs. The weight of evidence before the Board demonstrates that
12 waivers will be most useful where a permittee is able to demonstrate that its discharges do not
13 cause or contribute to a violation of water quality standards, or that water quality standards are
14 otherwise being met, even though the permittee does not meet a benchmark specified in the
15 permit. Given the use of the terms, and their likely application, we find the waiver sections
16 adequately clear and valid.

17 [34]

18 On summary judgment, the Board held that where a permittee continues to exceed
19 benchmark values, it must install BMPs beyond those described in Ecology’s SWMMs. We
20 noted that the ISGP requires site-specific, professionally engineered solutions to ongoing
21 exceedances of benchmarks, at the Level 3 corrective action time. *ConditonS8.D.2.* BMPs

“demonstrably equivalent” to those of the SWMM may also be required, and emerging

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1 technologies, not yet in the SWMM, may also be available to a facility at a Level 3 corrective
2 action. We stated that the requirement to implement these additional BMPs would be triggered
3 when a permittee was at a Level 3 corrective action, “presumably based on data or other site-
4 specific information that demonstrates continued inability to meet the benchmarks, and the
5 possibility of discharges that cause or contribute to a violation of water quality standards.” The
6 Board’s holding on summary judgment makes clear that site-specific solutions are called for by
7 Condition S8. of the ISGP, and may be beyond those BMPs described in the SWMM. Such
8 steps are, however, part of the adaptive management response of the permit. Those
9 requirements are triggered by sampling that demonstrates continued exceedances of benchmark
10 values. Boeing disagrees with the Board’s conclusion, and asked the Board to reconsider and
11 allow evidence on this question. The Board did allow evidence, but the evidence presented at
12 hearing does not change our conclusion.

13 [35]

14 RCW 90.48.555(6) affords industrial permittees a “presumption of compliance” with
15 water quality standards when the permittee is in full compliance with *all permit conditions, and*
16 *fully implementing stormwater best management practices* contained in stormwater technical
17 manuals approved by Ecology (or demonstrably equivalent practices) (emphasis added). RCW
18 90.48.555(6)(b). Boeing has argued that so long as it is implementing Ecology’s stormwater
19 management manuals, and BMPs described therein, it is entitled to this presumption of
20 compliance with water quality standards, and need not take further corrective action steps, even
21 if it is not meeting benchmarks. Boeing asserts that discharge monitoring data or sampling

results that demonstrate a failure to meet the benchmark are not indicative of a violation of water

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1 quality standards and do not negate the presumption of compliance. Boeing argues that the
2 benchmarks themselves are not accurate measurements of water quality, and expecting on-going
3 efforts to comply with the benchmarks converts them into numeric effluent limitations. Boeing
4 appears to be stating that the Board’s ruling on summary judgment is tantamount to a holding
5 that a failure to meet the benchmarks is equivalent to a violation of water quality standards.
6 Boeing argues that ISGP benchmarks, if interpreted in this manner, are arbitrary and capricious.

7 [36]

8 Boeing misconstrues both the Board’s ruling on summary judgment, and the manner in
9 which the presumption of compliance stated at RCW 90.48.555(6) must be applied. As we have
10 repeatedly stated, while an exceedance of a benchmark is not, in and of itself, a violation of a
11 water quality standard, the benchmarks are indicator values--values that are predictive of
12 potential, or actual, water quality violations. *PSA v. Northwest Marine Trade Assc.; Association*
13 *of General Contractors v. Ecology, supra*. A failure to meet benchmarks requires a permittee to
14 make continued efforts to improve application and performance of BMPs. The statutory
15 “presumption of compliance” requires a permittee to comply with “all permit conditions,”
16 including those that require increasing levels of corrective actions to meet the benchmark values.
17 This calls for professional level involvement in the modification of the SWPPP, and
18 implementation of new or site-specific BMPs. *Condition S8.D.2.b*. The permittee may have to
19 pursue industry specific responses to meet benchmarks.

20 If, in the course of the adaptive management process, the permittee has AKART in place
21 and has implemented a Level 3 response but continues to not meet the benchmarks, the ISGP
offers two paths. The first option is to seek a waiver, and to demonstrate that installation of

1 additional BMPs is not feasible or not necessary to prevent discharges that may cause of
2 contribute to violations of water quality standards. The second option is to take further steps to
3 attain the benchmark or, alternatively, bring a facility into compliance with water quality
4 standards as the case may be. Ecology may require this second option through the issuance of an
5 administrative order.

6 The adaptive management process envisioned by the permit is iterative, and does not
7 necessarily anticipate the kind of definitive cut-off point Boeing appears to seek. The permittee
8 is ultimately required to comply with water quality standards, both under the law, and under the
9 terms of the ISGP. *Condition S10*. To work as an effective adaptive management process,
10 however, Condition S8. requires further refinement. This Board has previously recognized that,
11 to be valid, an adaptive management program in a general permit requires a meaningful
12 mechanism for feedback, to allow evaluation of the effectiveness of the measures and to make
13 any necessary changes in response to such results in order to achieve the desired goal. *Puget*
14 *Soundkeeper Alliance v. Ecology*, PCHB Nos. 07-021, 07-026 through 07-030, 07-037 (Phase I)
15 and 07-022 & 07-023 (Phase II), Findings of Fact, Conclusions of Law, and Order, (2008)
16 (Municipal Stormwater General Permit, Condition S4., Phase I and Phase II). Quarterly
17 discharge monitoring reports may be sufficient feedback in some circumstances, particularly
18 with Level 1 and Level 2 actions, but they are likely inadequate in more complex situations such
19 as Level 3 treatment BMPs. *Id.* at COL 22. Ecology's lead permit writer has explained that at a
20 Level 3 corrective action, Ecology and the permittee will be engaged in an iterative exchange
21 and evaluation of BMPs, to bring the facility to compliance with benchmarks. We conclude that

Condition S8.D. (Level Three Corrective Actions) of the ISGP should also require the use of
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1 ORDER

2 A. The Board concludes that the majority of provisions of the 2010 Industrial Stormwater
3 General Permit are valid and lawful. Pursuant to WAC 371-08-540, we remand the
4 following limited aspects of the permit to Ecology for modifications.

5 1. Ecology shall modify Condition S4.B.6., the “Consistent Attainment” provision
6 consistent with the alternatives discussed in this opinion.

7 2. Ecology shall modify the provisions of Condition S8., “Corrective Actions”
8 consistent with this opinion.

9 B. The previously entered STAY related to compliance with Antidegradation
10 requirements is VACATED.

11 C. Having allowed the presentation of evidence on Legal Issues No. 31 and 62, as
12 requested by Boeing, the Board DENIES the motion to Reconsider its January 5, 2011
13 Order on Summary Judgment addressing these issues.

14 DONE this 25th day of April, 2011.

15 POLLUTION CONTROL HEARINGS BOARD
16 KATHLEEN D. MIX, Presiding
17 SEE CONCURRENCE
18 WILLIAM H. LYNCH, Member
19 ANDREA McNAMARA DOYLE, Chair
20
21

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2 **P 10-135 THROUGH P 10-141**

3 **APPENDIX A**
4 **(to Findings of Fact, Conclusions of Law, and Order)**

- 5 5. Does the issuance of the general permit violate the total maximum daily load (TMDL)
6 requirements of the federal and state Clean Water Acts by authorizing a discharge by a
7 new source into 303(d) listed waters?
- 8 6. Are the Permit's monitoring, application and reporting requirements consistent with
9 federal and state law requirements?
- 10 7. Are the Permit's effluent limitations consistent with federal and state law requirements?
- 11 8. Does the permit lack All Known and Reasonable Technologies?
- 12 9. Are the Permit's adaptive management requirements (corrective actions) inconsistent
13 with state law?
- 14 10. If the Board does have jurisdiction to consider this appeal, are Ecology's provisions for
15 modifications of the permit arbitrary and capricious?
- 16 11. Is the permit consistent with the requirements for general industrial stormwater permits
17 under RCW 90.48.555?
- 18 12. In its development of the permit, has Ecology violated the requirements of the anti-
19 degradation policy, WAC 173-201A, Part III?
- 20 13. Is the permit consistent with the regulations and procedural requirements for issuing a
21 NPDES and general permit, including chapters 173-201A, 173-204, 173-220 and 173-
226 WAC?
14. Are the permit coverage requirements for transportation facilities in Condition S1.A.1,
Table 1, arbitrary, capricious, or otherwise unlawful?
16. Is S1.A.1 invalid in its omission of a coverage requirement for transportation facilities
that have material handling facilities?
19. Is Condition S.1.C.4 of the permit invalid by failing to adequately define what facilities
used for office buildings and administrative parking lots are exempt from permit
coverage?

- 1 20. Should Condition S.1.C.4 exempt all parking lots from coverage under the permit where
2 stormwater does not commingle with stormwater from areas associated with industrial
activities?
- 3 34. Are the provisions of S4 concerning monitoring arbitrary and capricious or otherwise
4 invalid?
- 5 35. Are the provisions of S4.B concerning sampling timing requirements invalid?
- 6 42. Are the copper benchmarks in Condition S5.A of the permit arbitrary and capricious, not
based on substantial evidence and otherwise unreasonable and unlawful?
- 7 43. Does the ability to grant site-specific waivers or permit modifications cure the alleged
8 legal defects associated with the copper benchmarks in Condition S5.A of the permit?
- 9 45. Are the provisions of S5.A concerning the oil benchmark and accompanying monitoring
requirements invalid?
- 10 49. Are the provisions of S5.B.5 concerning benchmarks for the timber and paper products
11 industries invalid?
- 12 50. Are the provisions of S5.D.1 concerning conditionally authorized stormwater discharges invalid?
- 13 51. Are the provisions of S6.C concerning compliance schedules for effluent limitations for
14 discharges to 303(d)-listed waters invalid, in that no provision is made to ensure
satisfaction of the requirements of WAC 173-226-180 regarding interim requirements
and reporting?
- 15 52. Is the permit's omission and/or limited application of numeric water quality-based
16 effluent limitations for discharges to some categories of 303(d)-listed water bodies
inconsistent with the requirements of RCW 90.48.555 or otherwise invalid?
- 17 53. Are the provisions of S6.D concerning discharges to water bodies with TMDLs invalid?
- 18 54. Is Condition S.6.C of the permit arbitrary and capricious or otherwise invalid by
19 requiring monitoring and compliance with a TSS effluent limitation as a surrogate for a
303(d) listing based on a sediment quality parameter?
- 20 55. Is Condition S.6.C of the permit arbitrary and capricious or invalid by requiring
21 monitoring and compliance with a fecal coliform effluent limitation by all SIC codes
covered under the permit?

- 1 56. Do the numeric effluent limits applicable to discharges into Section 303(d) listed water
2 bodies in Condition S6.C, Table 5, violate RCW 90.48.555?
3 (West) Are the additional sampling requirements of Table 5 adequate to ensure protection
4 of impaired bodies of water?
- 5 58. Are the provisions of S8 concerning timelines and triggers for corrective actions arbitrary
6 and capricious or otherwise invalid?
- 7 59. Are the provisions of S8 concerning waivers from the requirements of Level 2 and Level
8 3 responses arbitrary and capricious or otherwise invalid?
- 9 60. Are the provisions of S8.D concerning the requirements for treatment BMPs invalid?
- 10 64. Are Conditions S8.C.4 and S8.D.4 of the permit invalid by failing to define when it may
11 be unnecessary to achieve a benchmark?
- 12 65. Are Conditions S8.C.4, S8.D.4 and S10 of the permit invalid by requiring a
13 demonstration as to the feasibility and necessity for additional BMPs?
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