Response to Comments
Draft NPDES Permit No. ID-002149-1
City of Moscow, Idaho

Background: On August 17, 1998, EPA issued a notice of proposed reissuance of a National Pollutant Discharge Elimination System (NPDES) permit for the City of Moscow, Idaho. The facility is an activated sludge wastewater treatment plant. The wastewater from the facility is discharged to Paradise Creek. The public review and comment period expired on, September 16, 1998. A Public Hearing for the draft permit was held in the City of Moscow on November 17, 1998.

Written comments regarding the proposed permit for the Moscow facility were received from the permittee, through a letter from Marshall Comstock, Mayor, from the University of Idaho, through a letter from Fred Hutchinson, Safety Officer, and from The Lands Council, through a letter from Mark Solomon, Executive Director. Comments were also received during the public hearing. The following summarizes and responds to each significant comment raised.

1. Comment: The City of Moscow (hereafter referred to as the City) stated that the mass loading computations are based on a design flow of 3.6 million gallons per day (mgd). The City's wastewater treatment plant is being upgraded to 4.0 mgd and therefore mass loading computations should be based on 4.0 mgd.

   Response: EPA regulations at 40 CFR 122.45.f. require the loading limitations in an NPDES permit to be based on the design flow of the facility. Currently the design flow of the facility is 3.6 mgd. Therefore, the facility is required to comply with loading limitations based on this flow.

   Consultants for the City have recommended that the design flow the facility be upgraded to 4.0 mgd, however, no information has been submitted which indicates that a decision has been made to increase the design capacity of the facility. If , in the future, the facility does decide to increase the design capacity of the treatment plant the City may request that their permit be modified to reflect the new design flow.

2. Comment: The Lands Council stated that the draft permit establishes load limits for various pollutants based on the design flow of 3.6 mgd, even though monitoring data indicates that the actual effluent flow is between 2.0 - 2.5 mgd. The commenter believes that the final permit must establish effluent limits for phosphorus and ammonia based on the actual effluent flow of the facility.

   This is of particular importance during periods of low stream flow in Paradise Creek because the effluent flow is the significant majority of the

entire flow. Failure to downwardly adjust the nutrient limits to correlate to actual flow will add an unacceptable level of nutrients to the creek.

Response: When determining loading limits the TMDL used a proposed facility design flow of 4.0 mgd to determine the loading limitation for the Moscow facility. As stated in the previous comment, federal regulations require loading limitations to be based on the actual design flow of the facility. In this case, the current design flow is 3.6 mgd and loading limitations in the final permit are based on this flow.

Federal regulations at 40 CFR 122.44. (d)(vii) require effluent limits in NPDES permits to be consistent with the assumptions and requirements of any available wasteload allocation. The effluent limits in the draft permit were based on the *Paradise Creek TMDL, Water Body Assessment and Total Maximum Load* (hereafter referred to as the TMDL). In that document the State determined the acceptable effluent flow-based wasteload allocations (WLAs) for phosphorus, and ammonia that are protective of the beneficial uses of Paradise Creek during all flow conditions.

3. Comment: The City stated that the ammonia effluent limitations should be revised to reflect the new ammonia criteria recommended by the Environmental Protection Agency (EPA). Since Idaho and Washington have not had a chance to adopt the EPA's new criteria, the permit should have an additional section that contains ammonia effluent limits based on the new ammonia criteria. The permit should state that the limits in this section will become effective if Idaho and Washington adopt the new criteria.

Response: EPA is required to develop permit limits based on the criteria currently in effect in the Idaho and Washington water quality standards (40 CFR §122.44(d) and 40 CFR §122.4). The final permit reflects the two State's water quality criteria for ammonia. If, in the future, the States change their water quality standards, the Permittee may request a modification of their permit to reflect the new criteria.

It should be noted that the ammonia criteria referred to by the City were the criteria recommended by EPA in a August 18, 1998 federal register notice. EPA requested comments on its recommendation and based on its assessment of public comments and other available information, EPA will either revise the criteria or publish a notice indicating its decision to not revise. The Idaho DEQ does not plan on considering the adoption of the recommended ammonia criteria until EPA has reviewed all the comments

and decided whether it will or will not revise the criteria.

4. Comment: The City stated that the ammonia limits should allow for a mixing zone when there is sufficient flow.

   Response: The effluent limits for ammonia are based on the wasteload allocations (WLA) developed in the TMDL. The TMDL did not allow a mixing zone. Since federal regulations require NPDES permit to be consistent with the assumptions and requirements of any available wasteload allocation, the NPDES program cannot allow a mixing zone for ammonia.

5. Comment: The City stated that the compliance schedule for ammonia may be extended to the time when EPA approves the state's new standards, provided that the states show intentions to adopt EPA's criteria.

   Response: The Idaho water quality standards do not allow the compliance schedule to be deferred to a later date on the basis of the assumption that the State might adopt different criteria.

6. Comment: The City requests to know what the ammonia limits would be based on the proposed EPA ammonia criteria.

   Response: The effluent limits associated with the ammonia criteria recommended by EPA in the August 18, 1998 Federal Register may be:

	Average Monthly Limit	Maximum Daily Limit
April 1- October 31	2.3 mg/L	5.3 mg/L
November 1 - March 31	2.8 mg/L	5.6 mg/L

7. Comment: The City stated that the phosphorus limit should be applicable from May 15 to September 30. This time period is based on the growing season for aquatic plants and need not extend into October.

   Response: The draft permit required the effluent limit for phosphorus to be effective from May 15 through October 15. This time frame is required by the Paradise Creek TMDL. As stated previously, federal regulations require NPDES permits to be consistent with any available WLA developed by the State. The mid May through mid October time frame will be retained in the final permit.

8. Comment: The City stated that there is uncertainty regarding the proposed total phosphorus limit and therefore it is appropriate to allow a phased approach to ultimately achieve compliance with the narrative standard. The City

stated that they will be implementing additional treatment for phosphorus removal, will be participating in programs to plant additional streamside vegetation which will shade the stream and pull nutrients from the river, both of which will reduce aquatic plant growth. The effect of these actions should be assessed before requiring further removal of phosphorus. The City recommends an average monthly limit of 1.0 mg/L (33.6 lbs/day) and an average weekly limit of 2.0 mg/L (67.2 lbs/day).

The City acknowledged that the Idaho Department of Environmental Quality (IDEQ) needs to amend the TMDL to allow this approach.

Response: As stated previously, and acknowledged by the City, federal regulations at 40 CFR §122.44(d)vii require effluent limits in NPDES permits to be consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR §130.7. In the TMDL, the State determined a WLA for phosphorus for the Moscow facility. The final permit reflects the requirements of the TMDL.

If, in the future, the phosphorus WLA in the Paradise Creek TMDL is modified by IDEQ, the permit may be reopened and the phosphorus limits may be modified. Until such time, the permit will retain the effluent limits required by the existing TMDL.

9. Comment: The City questions the necessity of the phosphorus WLA from the TMDL since there is no applicable water quality standard for total phosphorus, nor is there any EPA criterion.

Response: The Idaho water quality standards contain a narrative criterion for nutrients, which includes phosphorus. Specifically, the criterion states "Surface waters of the State shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses."

In the TMDL, the State interpreted their narrative criterion, and determined that an acceptable concentration of phosphorous is 0.136 mg/L. This is the value used in the draft permit.

It should be noted that the draft TMDL for Paradise Creek was made available for public review and comment from November 5, 1997 through December 5, 1997. Issues pertaining to how the State interpreted and developed the phosphorus portion of the TMDL should have been raised at that time. Once the TMDL is final, the NPDES program must use it when

developing effluent limits.

10. Comment: The City stated that there is no determination made in the Fact Sheet that aquatic plant growth is impairing water quality standards. Rather, EPA justifies the phosphorus limits only as needed to implement the TMDL. Additionally, there is no determination made in the TMDL that aquatic plant growth is impairing water quality standards.

Response: The determination that aquatic plant growth is impairing the water quality standards of Paradise Creek was made when the State listed Paradise Creek on the 303(d) list. Specifically, section 303(d) of the Clean Water Act requires States to identify those water quality-limited waters needing TMDLs. A water quality limited water is defined as "any segment where it is known that water quality does not meet applicable water quality standards and/or is not expected to meet applicable water quality standards even after application of technology-based effluent limitations required by sections 301(b)(1)(A) and (B) and 306 of the Act (40 CFR §131.3)." States are required to identify the water quality limited waters targeted for TMDL development and the pollutants or stressors for which the water is water quality limited.

This process was completed for Paradise Creek in 1994, when the State listed Paradise Creek as water quality limited for nutrients. The State then acted on that listing and developed a TMDL to address the nutrient problem in Paradise Creek. The limits in the permit are based on the conclusions of the TMDL, as required by federal regulations.

11. Comment: The City stated that the proposed effluent limits for phosphorus and/or temperature may be economically attainable only by removing the discharge from the creek. The result of such action will be a substantial loss of aquatic habitat, because during certain periods the discharge makes up most of the flow in Paradise Creek.

The permit writer needs to find the reasonable balance between moving towards attaining a narrative standard for nuisance aquatic plant growth and maintaining a beneficial aquatic habitat. The permit fails to do this.

Response: As stated previously, federal regulation require effluent limits to be consistent with the assumptions and requirements of any WLA for a discharge developed by the State and approved by EPA. It is beyond the scope of the permitting program to modify or adjust WLAs in a TMDL.

However, if future studies indicate that the WLAs in the TMDL are too

stringent or not stringent enough the TMDL may be modified by IDEQ. Once this process is completed the permit may also be modified to reflect the modified TMDL.

12. Comment: The University of Idaho stated that there is uncertainty in the validity of the phosphorus data as well as data gaps in the TMDL. The University recommended that the effects of existing and future planned improvements to Paradise Creek be monitored over the next several years to obtain better data and evidence to show that a reduction in phosphorus levels, beyond those attained by the existing and planned improvements, are warranted. If the data shows that further phosphorus reductions are necessary, then the City of Moscow should be required to meet the effluent limitations in the draft permit.

Response: As stated previously, federal regulation require effluent limits in NPDES permits to be consistent with the assumptions and requirements of any WLA for a discharge developed by the State and approved by EPA.

Comments relating to the data used in the development of the TMDL should have been raised during the public notice of the draft TMDL. As stated previously, once the TMDL is final, the NPDES program must be consistent with it when developing effluent limits.

13. Comment: The City stated that the allowable effluent flow volume essentially ratchets the effluent flow down to zero for much of the summer in the interest of helping Paradise Creek meet the Washington Class A stream standard. This is self-defeating since the loss of flow assures that the remaining stream flow will be so diminished that it will be subject to greater warming and there will also occur a substantial loss of aquatic habitat.

The City recommends that Section I.A.6. (Allowable Daily Effluent Flow Volume) be deleted and proposes various BMPs, monitoring requirements, and possible water quality standards changes.

Response: Federal regulations require effluent limits in NPDES permits to be consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA.

In the TMDL, the State determined a WLA for temperature, and also determined the allowable rate of effluent discharge from the Moscow facility to meet that WLA. As stated previously, once the TMDL is final, the NPDES program must be consistent with it when developing effluent

limits. The final permit reflects the requirements of the TMDL.

14. Comment: If the allowable effluent flow volume requirement is not deleted from the final permit, the City requested that the compliance date of February 1, 2002 be extended to the full term of the permit. The City requested that the extension be granted to allow time to assess the effects of removing the effluent from the creek, collect temperature information, implement reasonable thermal source controls, and work with the Washington State to review temperature standards. The City stated that time is needed to evaluate and implement alternatives.

Several other commenters stated that the period of time for compliance with effluent limits for temperature, phosphorus should be extended beyond the five years allocated in the draft permit. The commenters cited the IDEQ's 401 certification letter dated October 16, 1998. The IDEQ letter stated that a compliance schedule could go beyond five years if the permit is administratively extended. The certification required compliance with the final effluent limits for phosphorus on or before December 2009, and compliance with the final effluent limits for flow limitations on or before 2005.

Response: State regulations limit compliance schedules to five years or the life of the permit. The State appears to interpret "life of the permit" to mean the actual permit term of five years plus any administrative extension (i.e., conditions of the permit continue in force and effect), which might be granted in the future. However, there is no guarantee, at the time of permit issuance, that a permit will be administratively extended in the future. Hence, there is no basis for EPA to conclude, at this point, that a compliance schedule greater than five years would still be within the life of the permit as required by State law.

EPA is interpreting the State's regulation as limiting compliance schedules to five years or the life of the permit, whichever is longer. For example, the maximum compliance schedule for permits that are being reissued is five years, the statutory life of the permit. For permits that are modified during their term, compliance schedules may be for the remaining life of the permit, or it may be as long as five years, which could result in a compliance schedule beyond the expiration date of the permit. This interpretation is consistent with the recent EPA action under the GLI (see 40 CFR Part 132, Appendix F).

The final NPDES permit contains a compliance schedule which allows the facility five years from the issuance date of the permit to come into compliance with the water quality based effluent limits for flow volume and phosphorus. This is consistent with the EPA approach in the GLI, and the State of Idaho water quality standards.

15. Comment: The City stated that the temperature discussion in the Fact Sheet states that the temperature criterion is 18°C, which is based on the State of Washington water quality standard. However, Washington's standard also includes a natural temperature component, and also includes several examples where the state has adopted higher temperature standards for rivers near the Idaho border.

The entire temperature discussion and need for temperature limits needs to be reconsidered and the TMDL rejected because the natural temperature levels were not considered. This is especially true in the case of what the temperatures would be downstream, if the effluent flow was greatly reduced or eliminated.

Response: To ensure that the instream temperature criterion of 18°C is met in Paradise Creek, the TMDL required the effluent volume discharged into Paradise Creek to be limited. As stated previously, federal regulations require the permit to be consistent with the TMDL.

The draft TMDL was made available for public review and comment from November 5, 1997 through December 5, 1997, issues pertaining to how the State interpreted and developed the temperature portion of the TMDL should have been raised at that time. As stated previously, once the TMDL is final, the NPDES program must be consistent with it when developing effluent limits.

16. Comment: The City stated that EPA never identified to the National Marine Fisheries Service (NMFS) that they proposed a permit that could drastically reduce or even eliminate stream flows in Paradise Creek. This will affect fish habitat and even though endangered anadromous species are not found in the vicinity of the discharge, it is obvious that the flow issue is significant to fisheries resource agencies.

Response: The fact sheet was made available to NMFS. The purpose of a fact sheet is to set forth the principle facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. The fact sheet cannot speculate on what treatment options the

facility may use. This is especially true in light of the fact that the City has not presented EPA with any documentation that shows they have adequately analyzed their treatment system to determine the sources of thermal or phosphorus input. Without this information it is premature to suggest a treatment alternative.

17. Comment: The City of Moscow believes that compliance with the proposed temperature limit should be measured at the Idaho/Washington border rather than imposed on the effluent at the City of Moscow Wastewater Treatment Plant.

Response: The effluent requirements for temperature in the draft permit were based on the Paradise Creek TMDL, which requires compliance at the facility outfall. As stated previously, federal regulations require the permit to be consistent with the TMDL.

18. Comment: The City stated that the need for a total residual chlorine effluent limitation was based on the July 1991 fact sheet for the current permit. The City states that the discussion from that fact sheet is not applicable to their present discharge. The reasonable potential calculation should be done for total residual chlorine using only the data obtained after the City installed and commenced operating the dechlorination equipment.

Response: EPA did do a reasonable potential analysis using data obtained after the City installed the dechlorination equipment. Results of that analysis show that the facility does need effluent limits for chlorine. The final permit contains chlorine limits (see Appendix A for the reasonable potential analysis).

19. Comment: The City stated that the water quality standards for turbidity are linked to the elevations above background, but following an assumed relationship of total suspended solids (TSS) to turbidity of 2:1, the limits in the draft permit disregard any consideration of the background and instead establish limits as if the background turbidity were always zero. As such, when there is a background turbidity, the permit limit is overly conservative.

Response: The effluent requirements in the draft permit were based on the TMDL, as required by federal regulations. Comments relating to the interpretation of criteria, and development of WLAs in the TMDL should have been raised during the public comment period for the draft TMDL. The NPDES permitting program does not have the authority to revise the requirements of a TMDL developed by the State and approved by EPA.

20. Comment: The weekly TSS limit was developed using a default coefficient of variation (CV) of 0.6. The City is in the process of upgrading its facility and will be collecting TSS data once the facility upgrades are in place. This data may show that a CV of 0.6 is inaccurate. The City requests that a footnote be added to the TSS limit allowing a modification of the limit if the new data shows that the default CV was inaccurate.

Response: A footnote is not needed in the permit because federal regulations (40 CFR § 122.62) allow permits to be modified during their term if EPA receives information that was not available at the time of permit issuance and would have justified the application of different permit conditions. If the facility collects effluent data which shows that the default CV was inaccurate the Permittee may request a modification of their permit based on this new information.

21. Comment: The City stated that the draft permit identifies a minimum dissolved oxygen (D.O.) level of 8.0 mg/L. This should be changed to either 6 mg/L based on Idaho's standards, or simply retain the 75% saturation requirement from the present permit.

The 8 mg/L limit is based on Washington's default Class A standards assigned to Paradise Creek. The City states that Washington State may change their D.O. criteria.

Response: EPA is required to develop permit limits based on the criteria currently in effect in the Idaho and Washington water quality standards (40 CFR §122.44(d) and 40 CFR §122.4). The final permit reflects Washington State's water quality criteria for D.O. If, in the future, the State changes their water quality standards, the Permittee may request a modification of their permit to reflect the new criteria.

22. Comment: The City states that the section on Compliance Dates should affirm the possibility that the limits may change based on new information that may affect the standard or the implementation of the standard.

Response: Additional language is not required in the permit because federal regulations (40 CFR § 122.62) allow permits to be modified during their term if EPA receives information that was not available at the time of permit issuance, and would have justified the application of different permit conditions.

23. Comment: The City states that Section I.D.5. requires that the "Permittee shall ensure pollutants from the biosolids do not reach surface waters of the United

States." The biosolids are provided to a contractor for inclusion in compost and the correct usage of the compost is not under the City's control. The City recommends that the language be revised to require the permittee to ensure pollutants from the biosolids, while present at the treatment facility or in the City's direct control, do not reach surface waters of the United States.

Response: The language in the final permit has been revised to "The Permittee shall ensure that pollutants from biosolids within the Permittee's direct control do not reach surface waters of the United States."

24. Comment: The City requests that section I.D.10. be revised such that the biosolids annual report is to be submitted by February 19th of each year rather than on February 19th of each year.

Response: The final permit has been revised to reflect this change.

25. Comment: The City is concerned with the incorporation of a Quality Assurance Project Plan (QAPP) as an enforceable part of the permit. As such it means that a violation of a QAPP is a violation of the permit. The City requested to know the basis for the requirement.

Response: The QAPP is an enforceable part of the permit. The QAPP requirement is based on federal regulations at 40 CFR §122.41(e) . The regulation requires the permittee to "properly operate and maintain all facilities and systems of treatment and control which are installed and used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures."

26. Comment: The City stated that the "Retention of Records" requirement (Section II.F.) requires the Permittee to retain all records for at least three years. This section then goes on to say that data collected on site and copies of Discharge Monitoring Reports must "be maintained on-site during the duration of activity at the permitted location". Thus data collected on site and DMRs are not subject to the three year retention limit. The paragraph needs to be clarified to allow off-site storage after three years for DMRs and on-site data.

Response: The final permit has been revised to allow off site storage of DMRs greater than 3 years old.

27. Comment: The City stated that EPA should also allow for adoption of an electronic

record keeping system in the future.

Response: Currently, EPA's computer tracking system is not able to accept electronic records, however, EPA is in the process of modernizing its system and electronic data tracking will be available in the future.

28. Comment: The "Other Noncompliance Reporting" requirement (Section II.H.) requires that instances of noncompliance not required to be reported within 24-hours shall...contain the information listed in Part II.G.4. The City believes the sentence should refer to II.G.3.

Response: The final permit has been corrected.

29. Comment: The last paragraph of the "Administrative Penalties" section (Section III.B.3) limits the conditions to relieve the permittee of the civil or criminal penalties for noncompliance to only the Bypass provisions of Section III.G, and the Upset provisions of Part III.H. Note that these exceptions pertain to situations that result in actual releases. The irony is that other provisions within the permit with potentially no environmental impact at all, are not allowed any exceptions. Such failures are subject to enforcement, civil or criminal penalties and citizen suits.

The City recognizes that EPA is limited with regard to changing the wording in Part III of the permit. The City's concern can be addressed by adding the following paragraphs to Section II.H (Other Noncompliance Reporting).

"If any event occurs which causes or may cause noncompliance with any condition of this permit by the permittee, the permittee shall notify EPA and the Idaho DEQ in writing within five (5) days of the date on which the permittee first knew or should have known of such event. The notices shall describe the event, the anticipated length of time of noncompliance, the cause or causes of the noncompliance, the measures taken or to be taken by the permittee to prevent or minimize the noncompliance and the timetable by which those measures will be implemented. The Permittee shall adopt all reasonable measures to avoid or minimize incidents of noncompliance.

If EPA determines that the event causing noncompliance has been or will be caused entirely by circumstances beyond the control of the permittee and that permittee could not have foreseen and prevented such noncompliance, then such incidents of noncompliance will not be considered to be violations by the permittee of the permit conditions."

Response: Federal regulations at 40 CFR 122.41(a) require the permittee to comply with all conditions of the permit. Any permit noncompliance is a violation of the Clean Water Act and is grounds for enforcement. In only very limited cases (e.g., under the bypass provisions) could the permittee possibly be relieved of civil or criminal penalties associated with noncompliance. In essence, the City is asking that EPA set up a variance procedure within the permit for exceptions to violations. EPA does not have the authority to do that in an NPDES permit.

30. Comment: The Oil and Hazardous Substance Liability requirement (Section IV.I) states that "Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the Act." This condition is overly broad to the extent that compliance with permit conditions is a defense to actions under Section 311 (Oil and Hazardous substance liability) of the Federal Clean Water Act.

Response: It is unclear from the comment what authority the City is using for its assertion. EPA is assuming the city is asserting that "permit as a shield" (Section 402 (k) of the Clean Water Act) extends to Section 311 of the Clean Water Act. This is incorrect, only Sections 301, 306, and 402 are covered by the "permit as a shield". The language in the final permit will remain unchanged from the draft permit.

31. Comment: The City stated that the design criteria in section I.F. are based on the 1994 Wastewater Facilities Plan. The proposed flow in the updated Wastewater Facilities Plan will be based on a population of 28,429 versus 25,429 in the 1994 Plan. Accordingly, the average flow should be 4.0 mgd, the influent 5-day Biochemical Oxygen Demand loading should be 7035 lbs/day, and the influent Total Suspended Solids loading should be 4379 lbs/day.

Response: That final permit has been corrected.

401 CERTIFICATION REQUIREMENTS

The Idaho Department of Environmental Quality issued a 401 certification of the City of Moscow NPDES permit. As part of the certification the State is requiring the following to be incorporated into the NPDES permit:

1. The permittee shall achieve compliance with the following interim total phosphorus effluent limits on or before February 2002

Average Monthly Limit	Average Weekly Limit
1.45 mg/L (43.5 lbs/day)	2.91 mg/L (87.5 lbs/day)

2. The City of Moscow shall submit an updated facilities plan within 120 days of the effective date of the permit and the updated facility plan shall be reviewed and approved by IDEQ. If IDEQ comments on the plan, the City shall provide a plan revised in accordance with the comments within 14 days after the City reviews the comments. Once approved, the City shall implement the plan. The updated facilities plan shall include the following:

   a) alternatives, costs and financing to bring the City's wastewater system into permanent compliance with the state water quality standards and describe the alternatives selected,
   b) a description of the facility's long term plans and goals for re-use and/or discharge of generated water,
   c) post construction and on-line predicted effluent loads for temperature and total phosphorus and their effect on in-stream water quality,
   d) an effluent and in-stream water quality monitoring program to verify actual post construction and on-line effluent loads for temperature and phosphorus and their effect on in-stream water quality,
   e) post construction procedures to be followed for plant mechanical, structural and operational revisions and other on-site/off-site improvements to be implemented to achieve water quality standards, TMDL developed targets or full support of designated beneficial uses in response to documented effluent effects on in-stream water quality conditions.

CORRECTIONS

1. The draft permit stated that the effluent pH should be between 6.5 aand 8.5 standard units. The fact sheet states that the effluent limit in the permit is the more stringent of the water quality based effluent limit or the technology based effluent limit. The water quality standard for pH is 6.5 to 9.5 standard units, and the technology based limit is 6.0 - 9.0 standard units. The draft permit should have referenced the water quality standard as the lower limit (6.5 standard units) and the technology limit as the upper limit (9.0 standard units). The final permit requires the pH of the effluent to be between 6.5 and 9.0 standard units.

2. In the draft permit, EPA proposed using an interim minimum level of 20 µg/L. However, in a 1997 federal register notice (*Guidelines Establishing Test Procedures for analysis and Pollutants and National Primary Drinking Water Regulations*, March 28, 1997) EPA published an ML of 100 µg/L for chlorine. This ML value will be used to determine compliance with the chlorine effluent limitation.

APPENDIX A
Total Residual Chlorine
Reasonable Potential Analysis

In the case of Paradise Creek the beneficial use that needs to be protected is aquatic life. The acute criterion for chlorine is .019 mg/L and the chronic criterion is .011 mg/L. The acute criterion protects against short term impacts to aquatic life, and the chronic criterion protects against long term impacts to aquatic life.

When evaluating the effluent to determine if water quality based effluent limits (WQBELs) are needed based on chemical specific numeric criteria, a projection of the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern is made. If the projected concentration of the receiving water exceeds the applicable numeric criterion for a specific chemical, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standards, and a WQBEL is required.

The following mass balance equation is used to determine the downstream receiving water concentration:

$$C_d = \frac{(C_e \text{ X } Q_e) + (C_u \text{ X } (Q_u \text{ X } \%MZ))}{Q_e + (Q_u \text{ X } \%MZ)}$$

where,
C_d = receiving water concentration downstream of the effluent discharge
Q_d = receiving water flow downstream of the effluent discharge
C_e = maximum projected effluent concentration
Q_e = maximum effluent flow
C_u = upstream concentration of pollutant
Q_u = upstream flow
%MZ = percent mixing zone authorized by the IDEQ

As stated in the fact sheet, a mixing zone has not been authorized for Paradise Creek. Therefore, the mass balance equation becomes:

$$C_d = C_e,$$

or the downstream receiving water concentration is equal to the maximum projected effluent concentration. When the downstream concentration of the stream (C_d) is greater than or equal to the criterion, a water quality based effluent limit is required.

When determining the projected receiving water concentration, EPA's *Technical Support Document for Water Quality-based Toxics Controls* (TSD, 1991) recommends using the

maximum projected effluent concentration. To determine the maximum projected effluent concentration (C_e) EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each parameter has been calculated, the reasonable potential multiplier used to derive the maximum projected effluent concentration (C_e) can be found in Table 3-1 of EPA's TSD. A reasonable potential multiplier may vary from a low of 1 to 368.

The maximum projected concentration (C_e) for the effluent is equal to the highest observed concentration value of the data set multiplied by the reasonable potential multiplier (the reasonable potential multiplier is can be greater than or equal to 1). The highest data value observed since the dechlorination system was installed in May 25, 1995 was .55 mg/L (July 1196). Even without multiplying it by the reasonable potential multiplier this value exceeds the chronic criterion for chlorine, therefore, there is a reasonable potential for the effluent to cause or contribute to an exceedance of a water quality standard and an effluent limit is required.