H/WCIU Doc. 169

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December 19, 2007

Ms. Sally Smith, President
Gila Resources Information Project
305A N. Cooper Street
Silver City, New Mexico 88061

Re: NMED response to the Hanover and Whitewater Creeks Investigation Unit, Human Health Risk Assessment comment letter dated August 31, 2007

Dear Ms. Smith:

The New Mexico Environment Department (NMED) writes this letter in response to your letter dated August 31, 2007. The format of this letter lists the GRIP question/concern in Italic print followed by the NMED response in Normal print.

1) *The Executive Summary would be clearer if the "envisioned additional testing" would be at least briefly described. If there is to be no Phase II, what will this sampling be called and in what areas will it be conducted? How will these potential additional sampling sites be determined? Are there maps to delineate the areas needing additional testing?*

Response. A revised draft of the H/WCIU risk assessment will be prepared that includes the results of extensive sediment field sampling in Exposure Reach 1 conducted subsequent to the preparation of the current draft. Additional sampling that may be required to support risk-based decisions for the H/WCIU will be performed in the context of developing and applying remedial action criteria for the IU.

2) *At the beginning of the Executive Summary, a list of the exposure scenarios referred to where sampling is inadequate would be helpful.*

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Response. These scenarios are the subject of the last several paragraphs of the Executive Summary, where a description is provided of the metals and exposure pathways related to locations where metal concentrations exceed scenario-specific PRGs. The revised risk assessment will cite these scenarios in the second paragraph of the Executive Summary.

3) *In situations where exposure is "not expected to be localized in the smaller un-sampled regions of elevated concentrations for long periods of time", are metals in these smaller regions expected to migrate over time? Would potentially effected material be expected to be transported by wind or water to other areas which then would have additional metal loading in the future that would not be presently sampled and accounted for in the RA?*

Response. This statement, in the third paragraph of the Executive Summary, is referring to the possibility of areas of relatively high metals concentrations in overbanks and bars. As described in the response to Comment 1, a revised draft of the H/WCIU risk assessment will be prepared that includes the results of recent extensive sediment field sampling in Exposure Reach 1. These additional sediment data are expected to be adequate to determine whether localized regions of higher metal concentrations exist is bars and overbanks in Exposure Reach 1. If metals from any such areas were to migrate in the future they would be diluted in the process. Therefore, an evaluation of potential exposures in the present day to any such localized contamination is protective of potential future conditions.

4) *In these smaller places where exposure is not expected for longer periods of time was there consideration of potential excavation by PD employees or residents even if roads do not currently exist but could exist in the future? Are these reaches places where children would never be expected to play, say under future residential scenarios, or where vagrants or recreators are not expected to trespass and camp, or ORVs not expected to operate? What would limit these activities in the future?*

In the NMED letter to CMC dated June, 25, 2007, Comment 7, page 6., NMED said that off-site residential use in any P-reach is related to whether someone can access stream sediments with a vehicle. Would that potential include the smaller un-sampled reaches mentioned?

Response. The phrase "smaller places where exposure is not expected for longer periods of time" refers to evaluation of exposure scenarios such as adult Recreational land use. A characteristic of such a scenario is that an individual is exposed over time across a broad area. However, other exposure scenarios applied in the H/WCIU risk assessment, such as Residential land use, are indeed evaluated on such smaller scales. As described in the response to Comment 1, a revised draft of the H/WCIU risk assessment will be prepared that includes the results of recent extensive sediment field sampling in Exposure Reach 1. These additional sediment data are expected to be adequate to determine whether localized regions of higher metal concentrations exist is bars and overbanks in Exposure Reach 1.

5) *Residents at the July 2007 CWG Meeting expressed concern about ORV convoys which stir up large amounts of dust and often have children on board or driving. Would these multiple vehicles present a risk beyond the RA's present calculation for dust inhalation? Were multiple vehicles and children considered in the vehicle modeling, such as the pipeline truck convoys and multiple ORVs? Both of these possibilities should be considered.*

Response. The H/WCIU risk assessment provides a highly protective screening-level evaluation of potential risks related to dust generated by vehicle traffic during potential construction activities. The assumed conditions were 30 vehicles per day traversing a 30-acre construction area on dirt roads for 250 days per year. This evaluation suggested that soil concentrations of manganese as low as background levels could still present unacceptable health risks via dust inhalation. However, the hypothetical amount of dust in air

predicted by this protective model is probably unrealistic; it's more than twice as high as 24-hour Federal air standards for fine particles.

The applicability of the modeling exercise to the situation of truck convoys or ORVs depends on the relative number of vehicles and the vehicle weight. Unless the pipeline roads traverse H/WC stream sediments, the issue of truck convoys is outside the scope of the HWCIU. How applicable the model results are to ORVs within the IU is difficult to determine because the amount of respirable size dust generated by ORVs, and the amount actually inhaled by a user in a riding event, is likely to be highly variable across multiple events and locations. This uncertainty will be discussed further in the revised risk assessment.

6) *How will access be limited in perpetuity in Exposure Reach 2, where access to the area is currently controlled by CMC and where only the trespasser scenario is evaluated in the RA? These areas should be remediated to higher standards than trespass in expectation of changes of use after mine closure.*

There is a reference, in Section 3.0 that says the Exposure Assessment is expected to be applicable to at least end of the Life of the Mine. Where in the RA does it explain how long the sampling and associated risk calculation are viable?

Response. Exposure Reach 2 was assigned a trespassing scenario in the 1999 Risk Assessment Work Plan for the HWCIU because of both current access restrictions and more importantly, the limited amount of natural stream channel that might be used for future recreational, ranching, or residential activities. As noted in Section 5.6 of the risk assessment (Identification of Data Gaps), conditions in Exposure Reach 2 have changed with the creation of the James Canyon reservoir. Possible future residential exposure pathways, including exposure related to swimming, have been evaluated in the Smelter and Tailing Soils Investigation Unit.

The period of time to which the risk calculations pertain was described as related to the lifetime of the mine because of the expectation that land ownership and related activities may change at that point and because remedial and/or engineering actions related to closure may affect conditions in the IU. Because the actual date of mine closure is uncertain, an exact time cannot be specified.

7) *On page 3 of the NMED response to EPA comments EPA strongly recommends interim action or removal action be considered for copper concentrations precipitate at the confluence of Hanover/Whitewater Creek and in Bayard Canyon. The concentrate is 5.2% or 50,000mg/kg! NMED said that a complete exposure pathway is unlikely for chronic exposure but not impossible. NMED does go on to say that there could be acute health risk in this precipitate for an acute single exposure event. The acute exposure possibility was apparently included in Section 2.2 in the context of exposure media and 3.2. as exposure media but not as regular exposures. Is a risk calculated for acute exposure?*

Because these creeks run through communities and water resources are scarce and attract both children and adults when available, please be conservative in calculating risk. In 3.5.3. surface water exposure is described as minimal, however children do play in residing flood waters, wade in shallow pools and might well be attracted in particular to playing in precipitates and evaporate that have unusual qualities.

Response. The acute (short term) effects of copper following ingestion may include nausea and vomiting as a result of the direct effects of copper ions on the stomach lining. As discussed in Section 4.2.4 of the risk assessment (Copper Toxicology), risks of acute effects from ingestion of copper-containing soils (or precipitate) were calculated as part of the basis for establishing a remedial action criterion for copper in the Hurley Soils IU. The final remedial action criterion for copper for the Hurley Soils IU was set at 0.5% (5,000 mg/kg), which is a factor of ten below the highest measured copper concentration in precipitate. The HWCIU

risk assessment concluded that, "the high concentrations of copper in precipitate would be expected to cause acute gastrointestinal effects should even small amounts of the material be ingested" (Section 5.2.2). Furthermore, the source of the precipitate will be investigated as part of Discharge Plan 1340, Condition 32 Site Wide Abatement.

8) *Areas such as the confluence of Hanover and Whitewater Creeks that do have exceedingly high COCP (sic) content and potential human exposure should be given special and immediate attention for sampling and considered for Interim Action.*

Response. As mentioned in the response to Comment 7, the shallow alluvial flow of the creek system will be investigated as part of the Abatement Plan for DP 1340.

9) *Mark Purcell said in the EPA Comment letter on the draft RA, that he would contact ATSDR informally (since the site is not on the Superfund National Priority List) regarding the high levels of copper and potential health threats. Have the EPA concerns been addressed and ATSDR been consulted?*

Response. As you know, through your personal communications with Mark Purcell, the EPA has informally contacted ATSDR and responded to your concerns. Any EPA/ATSDR concerns regarding the presence of precipitate in the creek system will be forwarded to NMED's DP staff.

10) *EPA was concerned that only adults are considered in the trespasser scenario in certain reaches. NMED response is that children 1-6 would be unlikely to reach the areas in Exposure Reach 2. Isn't this reach near North Hurley where trespass seems possible by adventurous 6 year olds and what about the ages between 6 and adult? Are 6 to 18 year olds included in all the trespass scenarios? If not considered, then why not? A conservative approach should be used in the likelihood that uses will change in the future.*

Response. The prospect of very young children continually entering the James Canyon and Bolton Draw areas at this time is remote. Also, the very low levels of calculated risks related to the occasional trespasser would remain negligible even were a young child to be substituted for an adult in the calculations. However, the prospect of changes in future land ownership and uses where exposure intensity may dramatically increase is a valid concern. In particular, the James Canyon reservoir may become an attractive feature if access restrictions are removed or not enforced. As stated in response to Comment 6, the exposure model for the area including the James Canyon reservoir will be considered in the S/TSIU risk assessment.

11) *Was a risked-based screening of surface water performed for the Final Draft RA as requested by EPA?*

Response. A simple risk-based evaluation of the available surface water data was performed and documented in Section 3.4.4.2 of the risk assessment. The screening indicated that potential risks related to surface water exposure are negligible.

12) *GRIP has concerns about potential recontamination of the IU by spills and potential existing contamination above Highway 152 from Continental Mine and /or Tin Can Operations or other sources. An analysis of this potential and protection from upstream contaminants should be part of the feasibility study and selected remedy.*

Response. Issues related to the risk of accidental releases from operations at the Chino Mine or upstream mining activities are outside of the scope of the Administrative Order On Consent (AOC), which focuses the

risk assessments on historical contamination from past mining activities. If releases from outside the AOC affect the IU, they will be addressed under existing discharge permits and/or a separate abatement plan.

13) *Page 7- Post-spill sampling show potentially higher sediment metal concentrations with the number of samples too small for definitive conclusions. Will these areas be re-sampled?*

Response. The concentrations of some metals in post-spill samples, shown in Figure 2-17 of the risk assessment, do appear elevated relative to the pre-spill RI sediment data. As discussed in the response to Comment 1, additional sampling that may be required to support risk-based decisions for the H/WCIU will be performed in the context of developing and applying remedial action criteria for the IU.

14) *Please consider the possible changes that may occur in the future in terms of land use, and in terms of the economy. In hard economic times people in rural areas tend to rely more on homegrown food sources and wild game. While there may be limited use of gardens and local animal proteins currently, this could change.*

Response. The risk assessment employs an Agricultural Resident exposure scenario to address the potential use of home-grown produce and animal foods by people living within the IU. The Agricultural Resident exposure scenario is a very conservative approach which addresses your concern.

15) *Were multiple risk considered additive and calculated for a situation such as a construction worker working days in the over-banks, who works nights at Chino and lives on an over-bank and recreates in the creek and eats locally harvested food and wildlife?*

Response. Each of the exposure scenarios is evaluated independently. The more exposure-intensive scenarios, including residential and agricultural residential, assume 100% of a person's time is spent within the IU. In a composite scenario, such as a construction worker who resides in the IU, daily time and associated exposure would be partitioned between work and residence. The difference in hypothetical chronic exposure between a resident and a composite construction worker / resident will therefore be less than the sum of the resident and construction worker risks. The exact difference will depend on how daily environmental contact rates such as soil ingestion and dermal soil contact are modified to account for this partitioning of time. Practically, the difference between a resident and construction / resident composite will be less than the difference between the RME and CTE estimates for these scenarios in the HWCIU. For this reason, such a composite scenario was not developed.

16) *It seems very likely that more areas adjacent to and possibly within the AOC area will become residential, especially after mine closure. It also seems possible that James Canyon Lake would be a likely destination for recreation and could be more frequently visited than occasional trespass. Was this considered? Residents of Bayard and Hurley have traditionally used areas adjacent to these towns and certainly would if again the mine were to close and enforcement of boundaries was lessened.*

Response. See response to Comments 6 and 10.

17) *Since, according to 3.5.2. the few shallow wells tested show increasing metals and decreasing pH moving downstream and there are not enough wells to be conclusive, shouldn't additional wells be drilled and the existing wells be re-sampled to determine the trend?*

Response. Additional sampling to establish the trend in groundwater metals concentrations in Exposure Reach 1, and to the establish groundwater metals concentrations in Exposure Reach 3, were identified as data

gaps in Section 5.6 of the risk assessment. This sampling may proceed under the relevant Discharge Plans rather than in the context of the AOC that governs the risk assessment. The risk assessment will be revised to summarize information related to groundwater, channel sediments, and precipitate in a single section where it can be easily referenced by Discharge Permit managers.

18) *Are EPA and NMED confident in the use of Hurley water system for background values for groundwater?*

Response. The use of municipal water from this water system represents a practical "background" insofar as this is the water currently supplied to residents of the area. The Hurley water system, supplied by Chino Mines Company, is sampled regularly as per State and Federal regulations.

If you need further assistance you may contact me at 388-1934.

Sincerely,

Phil Harrigan

Phil Harrigan, Chino AOC Project Manager
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
Silver City Field Office

cc: Mary Ann Menetrey, NMED
Jerry Schoeppner, NMED
Mark Purcell, USEPA
Ralph Perona, Neptune and Company