

Ministry Response to Comment Received

Introduction

The following presents comments received and corresponding ministry responses for the following draft documents:

- Director's Standard for Contaminated Sites – Nonscheduled Toxic Substances,
- Technical Guidance on Contaminated Sites X18e- Nonscheduled Toxic Substances, and
- Table 1 – Nonscheduled Toxic Substances.

Comments were received from the following individuals and organizations:

1. Mr. A.P. Tumber and Mr. V.G. Kallur, O'Connor Associates Environmental Inc.
2. Dr. Dennis Konasewich, Vice President Technical Services, Hemmera Envirochem Ltd.
3. Mr. Darren Schlamp
4. Mr. Chris Brown, P.Eng. – member of the Roster of Professional Experts
5. Ms. Sandy Holmes, Environment and Compliance Specialist, ExxonMobil Canada Ltd.
6. Mr. Bob Symington, Chair, Contaminated Site Regulation Committee, British Columbia Environment Industry Association
7. Mr. Steve Hilts, Environmental Remediation, Teck Cominco Metals Ltd.
8. Mr. P. Sam Reimer, Roster Steering Committee, Roster of Professional Experts

Note: To protect the confidentiality of commentators, comments contained herein are not attributed.

Comment and Response

1. Comment

“While it is clear that the expanded NSTS list will be of assistance to determine if a nonscheduled substance is toxic and to verify that a NSTS does not exceed a concentration in excess of that acceptable to the Director for a remediated site, it is not clear whether the analytical laboratories are capable of meeting all the remedial target concentrations and PQLs presented in Table 1. Our discussions with local laboratories indicated that the proposed remedial targets in Table 1 for tetraethyl lead are lower than regularly obtainable detection limits.”

Response

PQLs presented in Table 1 of Technical Guidance 18 have been determined in consultation with the Technical Subcommittee of the British Columbia Laboratory Quality Assurance Advisory Committee (BCLQAAC) and represent average laboratory detection limits for routinely achievable analytical methodologies.

A proponent may exercise the option of remediating to the PQL rather than the toxicologically determined remedial target values contained in Table 1.

2. Comment

“It is recognized that a large proportion of the substances listed in Table 1 of the above referenced protocol are pesticides or herbicides. Prior to the implementation of the revised NSTS list it would be beneficial if BCMWLAP could provide guidance with respect to whether or not pesticides and herbicides should be considered potential contaminants of concern at sites where pesticides and/or

herbicides were only used for their intended purpose (i.e. were utilized for application but were not present in large quantities, over 200 L, for storage or distribution). The requirement for detailed pesticide and herbicide scans on all sites where pesticides and/or herbicides may potentially have been applied but not used for storage or distribution will put a requirement on the property owners for more analyses that may not be necessary for remediation.”

Response

The draft guidance states that:

“A responsible person for a site, or for soil to be relocated, has no duty to characterize the soil or water of their site, or the soil to be relocated from their site, for the presence of a NSTS provided they have no reason to believe:

- **based on their knowledge of the history and use of substances at the site, and**
- **any other pertinent information which they may be, or subsequently become aware, (e.g. analytical results, site investigation results, etc.),**

that a nonscheduled substance might reasonably be expected to occur in soil or water at the site or in soil they propose to relocate, in sufficient concentration to represent an unacceptable risk or hazard to human or ecological health.”

In effect, there is no duty to investigate a Table 1 listed substance as a NSTS if the conditions of use at the site would not lead to the conclusion that the substance would qualify as a contaminant of concern at the site. Consequently, the responsible person or their agent (e.g. their consultant) would consider all the factors (presence, amount, toxicity, mobility, persistence, etc.) which are normally considered in determining if a substance reasonably represents a contaminant of concern at a particular site. Certainly, the example of storage of large quantities of pesticides at a site makes inclusion of those pesticides as contaminants of concern at a site relatively obvious and straight-forward. However, many modern pesticides by design have short environmental half-lives and do not therefore persist for significant periods of time after their use and a convincing argument for their exclusion as contaminants of concern can be made.

3. Comment

“A contradictory listing exists in Table 1. Cumene (isopropylbenzene) CAS no. 98-82-8 appears in the NSTS list but isopropylbenzene (Cumene) CAS no 98-82-8 appears in the excluded list as it is captured by volatile petroleum hydrocarbons (VPH).

Response

The erroneous listing of Cumene (isopropylbenzene) CAS no 98-82-8 as a NSTS in Table 1 has been deleted. Cumene is now excluded as a NSTS and only appears in the “for information only” section of the table.

4. Comment

“ To ensure that readers of the Director’s standard for Nonscheduled Toxic Substances are aware that additional instruction and guidance is available in Technical Guidance 18, a reference to consult Technical Guidance 18 should be included in the Director’s standard.

Response

Agreed. A reference to Technical Guidance 18 has been added to the Director’s Standard for Nonscheduled Toxic Substances.

5. Comment

“The use of a detection limit as a remedial target is an undue burden to remediation in the medium to long term. The trend for the past 100 years or more in analytical chemistry (and certainly for the past 50 years) is a steady lowering of detection limits. Thus, remedial targets based on practical quantitation limits will assuredly decrease over the next 10 years, penalizing those who redevelop sites in the future, without any clear science-based need for lower remedial targets.”

Response

Virtually every substance listed in Table 1 of Technical Guidance 18 has corresponding toxicologically determined remedial targets to protect human health. In virtually every case, the remedial targets provided in the table markedly exceed the corresponding PQL for the substance. It is therefore exceedingly unlikely that most NSTS sites will be remediated to the PQL rather than the remedial target for the substance.

In addition, the PQL provided for a nonscheduled toxic substance represents an average of the routinely detectable non detection limits (NDLs) reported for British Columbia laboratories, not the lowest detection limit possible to achieve based on specialized or highly sensitive analytical methodologies. Finally, should a responsible person not wish to use either the remedial targets or the PQL for a given NSTS, they are free to remediate the site using the risk assessment approach.

6. Comment

“Many, if not most of the substances listed in Table 1 are not presently listed on the schedule of analytical services for any laboratory in BC, and possibly within North America. In addition, standard methods for extraction and analysis from environmental media such as soil and groundwater are not likely to be available for many, or most of these substances. The quality of analysis for NSTS will vary, possibly greatly, due to the following:

-lack of standardized extraction methods. This may result in wildly different analytical results from different laboratories for the same homogenized sample.

-lack of information regarding interferences to analysis. This could result in both false positives and false negatives.

-costly development and verification of analytical methods may be required prior to analysis.

This is a large burden, especially if an NSTS is identified during a Stage 1 PSI as having only a low or moderate potential to be present at a site.”

Response

The question of availability of analytical methods for Tabled NSTS has been referred to the Technical Subcommittee of the BCLQAAC. However, it is important to note that those substances for which no analytical method exists are by definition non-detectable and therefore remediation would not be required.

7. Comment

“The full scientific basis for the proposed remedial targets should be made available for public review. Some of the targets do not appear achievable, such as that for tetraethyl lead (0.0061 ug/g for residential land [RL], 0.06 ug/g for commercial land [CL]). I question whether detection at such low concentrations is even routinely achievable by BC analytical laboratories - the lab I contacted is not capable of such analysis. As the RL lead matrix standard for protection of human health is 500 ug/g, I also question whether tetraethyl lead is actually one hundred thousand times more dangerous than lead.

Other proposed remedial targets are so high as to not merit inclusion as an NSTS. As an example, the listed remedial target for many substances is 1E+05 ug/g for CL, or 10% by weight in soil. One such chemical is methanol. I suspect that soil containing 10% methanol would be a special waste due to flammability.”

Response

The remedial targets provided in Table 1 are based on the USEPA Region 9 Preliminary Remediation Goals. Where necessary, these preliminary remediation goals have been adjusted to reflect the risk based standards (i.e. hazard index < 1.0 and ILCR of 1 in 100,000) currently in effect in British Columbia. The scientific derivation of the preliminary remedial goals has been fully documented by the EPA and is available at:

<http://www.epa.gov/region09/waste/sfund/prg/index.htm>

On the recommendation of the Technical Subcommittee of BCLQAAC, tetraethyl lead has been moved to the “for information only” section of Table 1. As a result, tetraethyl lead is no longer considered to be a NSTS for contaminated site regulatory purposes.

The remedial targets presented in Table 1 represent toxicologically derived limits to protect human health. The remedial targets do not take into account aspects related to physical hazards (such as flammability or corrosivity) which might render the substance to be a special waste under the Special Waste Regulation. Nor do they consider if the toxicologically relevant concentration might exceed the saturation limit for the substance in soil or exceed the solubility limit of the NSTS in water.

8. Comment

“The following statement in the technical guidance represents an unacceptably large liability to assume without the completion of a full ecological risk assessment.

“I [Name of responsible person for the site or soil to be relocated] have a reasonable basis to conclude that ecological receptors will not be significantly impacted by the use of [either]:

- the practical quantification limit[s], as specified in Table 1, or determined in accordance with the section entitled “Determination of the practical quantification limit for a non-scheduled toxic substance”, of Technical Guidance on Contaminated Sites 18: Nonscheduled Toxic Substances, or*
- the [soil and/or drinking water] remedial target[s] specified in Table 1 of Technical Guidance on Contaminated Sites 18: Nonscheduled Toxic Substances, for the following nonscheduled toxic substances.”*

By signing this statement, I feel that responsible persons could be liable for following the equivalent of the best available control technology of the day. In addition, given the lack of significant toxicological data for most of the Table 1 substances, no-one has a reasonable basis to conclude anything about ecological effects of many of the substances in Table 1. In addition, it appears to me that the assertion would require a responsible person to assume potential liability for following a standard set by MWLAP, which is inconsistent with the recommendations in the Minister's Review Panel final report regarding “crystallizing” standards.”

Response

The assertion related to ecological health impacts was included at the specific request of the Science Advisory Board for Contaminated Sites in British Columbia. The Science Advisory Board was adamant that some assurance of protection of ecological health at NSTS sites remediated to the human health based targets in Table 1 had to be provided so that residual

liability related to ecological issues would not be transferred either to the ministry or for example to prospective purchasers of NSTS remediated sites.

Responsible persons who wish to have the ministry provide assurance of compliance with ministry requirements related to ecological health at NSTS sites may either clean the site to the PQL for the NSTS or remediate the site using the risk assessment/risk management approach. However, it is not the intent of the ministry to force remediation to the PQL or to force every NSTS site into Ecological Risk Assessment in order to obtain a ministry instrument certifying “satisfactory remediation” and compliance with ministry requirements. Under the proposed NSTS process, those responsible persons wishing to remediate their NSTS site based on the human health protective remedial targets contained in Technical Guidance 18 and retain the liability for ecological protection via the ecological health assertion may do so. This will allow the many sites which do not have ecological impacts (e.g. based on the absence of operative ecological exposure or presence of ecological receptors) to be certified under the Contaminated Sites Regulation.

9. *Comment*

“Some proposed NSTS such as ethylene oxide and cyanogen are gases under standard conditions of temperature and pressure. As such, are soil remedial targets justifiable for these substances?”

Response

It has been our experience that toxic substances which one would not expect to be present in soil or water based on consideration of the substance’s physical-chemical characteristics (e.g. MTBE) can and are, on occasion, found to be present at contaminated sites within the Province. If the substance is not present, then no remedial action need be taken. If on the other hand an NSTS is present and the responsible person wishes certification for human health and is willing to retain liability related to ecological health, the proposed NSTS process can accommodate that situation.

10. *Comment*

“The CAEAL accreditation appears to be based on proficiency testing by CAEAL for specific substances. Regrettably, I am not familiar enough with the CAEAL accreditation process to comment in detail on whether CAEAL accreditation will cover NSTS substances, but after glancing through the CAEAL program description, I suspect that it will not.”

Response

It is correct that CAEAL accreditation is substance specific, and that CAEAL accreditation is currently lacking for many if not most, of the proposed NSTS substances. However, the requirement to use CAEAL accredited laboratories is an attempt to increase the likelihood that laboratories providing minimum analytical detection limits upon which the practical quantification limit for a NSTS is based, will be familiar with and therefore be more likely to incorporate appropriate quality assurance and quality control requirements in analyzing for NSTS.

11. *Comment*

“It is unclear to me whether failure to analyse all potential NSTS will result in rejection of a PSI, DSI or remedial report. As an example, any site at which gasoline was dispensed or used prior to 1991 could potentially contain tetraethyl lead as an NSTS. Will MWLAP now require that this NSTS be discussed for all such sites, and require that all reports include either an assertion claiming the NSTS is not likely to be present, or an attempt to detect tetraethyl lead? At what level of probability that an

NSTS is present will a responsible person's assertion be required? How will this probability be equally applied across BC, across industries, and for different substances?"

Response

See response to comment 8 above. The above comment is equally applicable to the substances for which scheduled standards are provided in the Contaminated Sites Regulation. No one is expected to, nor does anyone currently, test for every possible scheduled substance in soil or water at a site. The process related to selection of contaminants of concern for NSTS is no different than that used to select CSR scheduled substances. Consultants will select NSTS as potential contaminants of concern based on considerations of history and nature of use, amount present on site, toxicity, environmental persistence and all the other factors now used to identify scheduled substances as contaminants of concern.

Finally, on the recommendation of the Technical Subcommittee of the British Columbia Laboratory Quality Assurance Advisory Committee, tetraethyl lead has been moved to the "For Information Only" section of Table 1.

12. Comment

"In conclusion, I am concerned that the proposed NSTS director's standard and guidance will have the following negative impacts:

- require costly analysis or remediation without strong evidence that a substance is harmful at concentrations greater than the practical quantitation limit, or even that the analysis is reproducible*
- unfairly penalize site owners in the future as analytical detection limits change.*
- leave more sites as brownfields due to the unacceptable risks to owners and / or consultants associated with the assertion required in using any NSTS standard. Alternatively, the NSTS will be ignored as unworkable, similar to the existing Site Specific Standards for soil, and will instead drive sites towards risk assessment.*
- increase uncertainty and costs associated with site investigation and remediation in BC."*

Response

See previous response to these comments above.

13. Comment

"I live in the Okanagan Valley, and, upon first viewing the draft NSTS in mid-July, I noted the proposed NSTS remedial targets in soil for Uranium of 1.6 ug/g (ag/res) and 20 ug/g (comm/ind). The Okanagan has an abundance of uranium, and I wish to draw your attention to the following document:

Canadian Soil Quality Guidelines for Uranium

http://www.ccme.ca/assets/pdf/uranium_supp_doc_dec.2002_e.pdf

"The average background concentration of uranium in soil is about 2 mg/kg (NCRP, 1984)"

"Soils from the Okanagan region contain naturally high uranium concentrations ranging 3-572 mg/kg (Van Netten and Morley, 1982)"

Perhaps this can be resolved through the determination of background soil quality, although I would prefer to see a higher uranium standard. Also, does the background soil quality protocol take

precedence over the NSTS? Would a person still be required to make an assertion regarding NSTS for a background concentration of a substance?

I am concerned about a substance being deemed a contaminant at concentrations well below the background of a large region of BC, and believe that remedial targets should be greater than the national average background concentration of a substance. In order to avoid needless effort in determining background soil quality, I suggest that any standard should be equivalent to or greater than the 90th or 95th percentile from the background concentration data sets.”

Response

Please note that the remedial targets for uranium in soil are 1.6E+01 ug/g (or 16 ug/g) for residential and 2.0E+02 ug/g (or 200 ug/g) for commercial/industrial sites.

It is also important to recognize that under the NSTS guidance, a responsible person has no duty to consider any substance (uranium included) as a potential NSTS if there is no reason to believe based on the historic commercial/industrial activities conducted on the site that the substance was in fact used at the site.

The ministry has not established either Provincial or Regional background estimates for uranium in soil. Nor was uranium a parameter analyzed for in the recent ministry background soil analyses study. Consequently, at this point in time, the ministry has not yet determined the true range of uranium background, based on the Strong Acid Leachate Method (SALM) in the Southern Interior region of the Province. In this respect, it is also important to note that the background studies the commentator refers to used different analytical methods (i.e. total acid digests) to determine uranium concentrations in soil than the SALM method recently approved for use in British Columbia.

The “background release” applicable under section 11(3) is equally applicable to both NSTS and scheduled substances. Consequently, if in the rare event that a commercial/industrial site located in the Okanagan actually used uranium at their site, but it could be demonstrated in accordance with the local reference background procedure detailed in Protocol 4 – Determining Background Soil Quality, that the site was within background limits for uranium, the responsible person for the site could apply for and receive release as a contaminated site under CSR section 11(3).

14. Comment

“I have a fundamental concern regarding adoption of the Technical Guidance X18E on Contaminated Sites Nonscheduled Toxic Substances. The guidance document provides a long list of substances for which it sets remediation standards. Substances which have "hazardous" properties are selected based on lists of chemicals prepared by other agencies. Obviously there are circumstances where these compounds could be detrimental to the environment or to human health. However, the numerical standards that have been chosen to address this concern are too conservative and the standards will impact development and management of sites with contamination. This approach of using detection limits (PQLs) as a standard is catch-all in order to avoid potential political issues from not putting resources toward addressing these contaminant issues. These standards are being created without consideration of toxicological data and a way to avoid spending the time of qualified people in the public service to create numerical standards.

The rationale for this approach seems unreasonable and the limit set is arbitrary (i.e. the current testing technology). The Final Report of the Minister's Advisory Panel on Contaminated Sites recommends a definition of contaminated site as follows:

"Contaminated site" means an area of the environment where a substance is present and causing, has caused or is likely to cause an adverse effect to human health or the environment having regard to its current or intended use.

"Adverse effect" is that which poses an unacceptable risk to human health or the environment.

The Advisory Panel's report was intended to identify means to streamline and improve the management of contaminated sites. The NSTS Standards, as proposed, are contrary to this proposed definition of a contaminated site in the Advisory Panel report and to the principles of reasonable risk which reoccur throughout this document. In general, the Final Report indicates that there needs to be a "risk" that is posed by the presence of the compound, and not simply a measurable presence/absence. The Advisory Panel report repeatedly discusses application of "risk assessment" for determining action

The implications of implementing this policy are likely to have a very significant impact on development. In some respects the list of substances seems unbounded. Currently, assessments are conducted of a limited number of compounds based on the historical uses on the site and the numerical standards that could potentially be exceeded by the contaminants of concern. If the standard becomes the detection limit, it becomes almost impossible to predict whether any compound may or may not be at detectable concentrations. Who knows what we may find if we analyze every compound there could be present at measurable concentrations. There is a probability, however small, of any compound exceeding the detection limit/standard, therefore, it is not reasonable to assert that the substances, which are NSTS, are absolutely not present. The Rostered Professional Experts or Licensed Environmental Professionals can not make absolute assertions about probable circumstances since they are personally and professionally liable for those cases where an NSTS is later found to be present. The public service, on the other hand, is protected from liability in the legislation and can use judgement and opinion to guide their decisions. Consequently, the public service will be forced to do the report reviews for contaminated sites.

Normally assessments do not assess or sample all or any media on a site for NSTS listed substances. How much evidence is required to prove a negative? Would one sample do the trick and what parameters should it be tested for? Often these NSTS substances are not the primary contaminant, but a secondary contaminant. For example, an additive in gasoline may or may not be present on a site. If we test for BETX and find it meets standards, what is the likelihood that the additives will be at non-detectable concentrations. If it were present, it would likely become the key remediation parameter driving the site remediation since it has a much more stringent standard (i.e. its detection limit) than the primary contaminants. There are many sites that have been remediated for gasoline but have not been assessed for tetra ethyl lead. Nobody can say that TEL is absent or below the NSTS standards on a gasoline contaminated or any petroleum contaminated site since the NSTS PQL is in the ppb level. The NSTS should only be a consideration when the contaminant is a primary contaminant of concern and not a potential additive to a contaminant that is already addressed in the CSR numerical standards.

In conclusion, the Technical Guidance and potential Director Standard do not follow the spirit of risk based standards that the Advisory Panel have presented in their report. It is a step backward in terms of a technically defensible numerical standard for remediation of contaminated sites. Further, the new list of standards will hinder development because the entire burden of report review and issuing Certificates of Compliance will once again be on the shoulders of the ministry staff. These standards should only be applied in a limited number of circumstances where there is an NSTS listed substance and that substance is a primary contaminant (i.e. not a potential component or additive of a product that is already in the CSR standards)."

Response

The ministry disagrees that the “...numerical standards that have been chosen to address this concern are too conservative...” or that “These standards are being created without consideration of toxicological data...”.

The remedial targets provided in Table 1 of Technical Guidance 18 are toxicological values which have been derived by the US EPA using a derivation protocol which is very similar to the protocol used by the ministry to derive the human health protective standards of Schedule 5 (matrix standards) of the Regulation. Further the tabled remedial targets have been adjusted to reflect the ministry’s acceptable risk quotients. As a result the NSTS remedial targets proposed are no more and no less, conservative than the human health protective matrix standards already contained in the Contaminated Sites Regulation.

In regard to the concerns raised related to using the PQL as a “remedial standard” for NSTS, the ministry notes that for virtually every listed NSTS in Table 1, corresponding remedial targets are provided. For less than 1% of the substances listed in Table 1 are remedial targets lacking. It is true, however that at this time, for a very small number of tabled NSTS, the ministry is only able to offer PQLs for regulatory purposes. Developing human health protective remedial targets is a priority for the ministry and it is hoped that within a year by working in cooperation with the Science Advisory Board for Contaminated Sites, remedial targets for this small subset of NSTS will be available.

The ministry feels the NSTS remedial targets in Table 1 are scientifically defensible human health risk based standards and as such can fulfill the Panel’s advice related to credible numerical standards. The approach taken to NSTS is very flexible in respect to remedial options. NSTS can be remediated to the remedial target levels or the PQLs provided in Table 1, to a PQL determined through the procedure described in the guidance, or be remediated on the basis of the risk assessment/risk management approach. The decision as to which remedial option to use is left to the responsible person for the site. Thus, proponents who wish to remediate on the basis of the remedial targets may do so; proponents who wish to address NSTS through the risk assessment/risk management approach may do so; proponents who do not wish to address NSTS through the human health remedial targets and ecological assertion or the risk assessment/risk management approach and elect to clean to the PQLs for the NSTS may do so.

In response to concerns related to the extent of effort required to assess NSTS sites, the ministry believes that once the Director’s Standard for NSTS and Technical Guidance 18 come into effect, the level of effort to assess, characterize, remediate and confirm remediation at a site contaminated with a nonscheduled toxic substance should be roughly equivalent to that needed to perform these functions at a site contaminated only with a CSR scheduled substance.

15. Comment

“Re: Draft – Technical Guidance on Contaminated Sites, X18e

On page 4, the paragraph starting with “Furthermore, for the purposes of Protocol 6 ...,” seems to indicate that the ministry will not consider rationale for a risk assessment if the proponent completes the three provisions. I believe the intention of the statement was to allow for consideration of rationale for a risk assessment only if the proponent completes the three provisions.”

Response

Members of the Roster of Professional Experts are currently not authorized to provide recommendations for sites which proceed under the risk assessment/risk management approach. For the purposes of the ecological health assertion related to NSTS, it is necessary

therefore to advise rostered experts that, provided the conditions of the three bullets are observed, the ministry will not construe the rationale provided to constitute performance of ecological risk assessment.

To make this more clear, the passage will be re-drafted to read: “Furthermore, for the purposes of Protocol 6 under the regulation, the ministry does not consider rationale produced in support of the responsible person’s assertion related to ecological health to constitute performance of ecological risk assessment for a site provided that: >>>”

16. Comment

“Detection Limits

*NSTS uses the laboratory detection limit as a standard for some substances. The _____ noted that different laboratories have different detection limits (DL) for the same analysis depending on the sensitivity of their equipment. Variance in DL between different laboratories may be greater than an order of magnitude. More costly methods may be implemented to achieve lower DL. The committee resolved that the practical quantitative limit in Technical Guidance 18 (5 * the DL) should be more scientifically defined.”*

Response

The ministry recognizes that differing laboratories will have differing detection limits for various NSTS. For this reason, the PQL derivation procedure in Technical Guidance 18 includes a requirement to poll a minimum of three CAEAL certified laboratories to obtain their detection limits for a nonscheduled toxic substance and average these reported values to obtain a mean estimated detection limit which is then multiplied fivefold to obtain the corresponding PQL for the substance.

17. Comment

“Categorization

The ____ identified that it will be very difficult to know which substances to analyse for during a site investigation project following the introduction of the NSTS document. Categorization of the substances is recommended to aid in determining which substance to analyse for. The ____ recommends that Table 1 be divided into broad chemical classes, such as pesticides, herbicides, organics (chlorinated/non-chlorinated), metals, PAHs, MAHs, Base Neutrals, Base Acids, etc.

The ____ requests that if categories are adopted in Table 1, that it be made clear that the substances in each category are not intended to be applied as a list for general screening.”

Response

Chemical classification/categorization of Table 1 NSTS was considered in the drafting of Technical Guidance 18. However, it was decided that a simple alphabetized listing of NSTS would be both easier to use when looking up unfamiliar substances as well as being easier to annually update. Also, sites are seldom investigated on the basis of chemical substance class alone (e.g. sites are seldom investigated for all possible base neutral substances). Rather sites are investigated for substances (typically across several chemical classes) based on history of use and the activities performed at the site. Finally, it is possible that rather than discouraging use as an overly broad screening tool, chemical class categorization/listing could actually act to encourage or promote overly broad and unnecessary screening.

18. *Comment*

“Result Screening

In the remediation confirmation stage of a project the suite of analytical results can be screened at the laboratory before the consultant has viewed the data to remove non-PCOC from the analytical table. The ____ seeks clarification on MWLAP stance regarding result screening. It was noted that MWLAP or the Roster would be reluctant to screen PCOCs due to possibility of a major technical error”.

Response

The ministry’s preference is for the consultant/expert for a site to have identified appropriate PCOCs based on history of use and nature of commercial/industrial activity well prior to the remediation confirmation stage. Also, in most laboratories, reporting formats are highly automated, so laboratories are unlikely to provide what they would view as custom reports (e.g. a “metals scan” analytical report culled for only pertinent metal PCOCs for a particular site) at no additional cost. In summary, analytical result screening for a site’s particular PCOCs is acceptable. However, results screening must not be used to rule out legitimate PCOCs. Also, invariably roster experts and other qualified consultants will, as a matter of good professional practise, insist that additional rationale for any substances screened out as PCOCs be included in their submissions.

19. *Comment*

“Currency of NSTS

It has been suggested that Table 1 will be updated annually. On behalf of stakeholders the CSRC requests that the NSTS document have clearly defined clauses regarding the grandfathering of these substances as they may apply to ongoing investigations or applications for COCs, AIPs, etc.”.

Response

NSTS standards will take the form of Director’s standards. As such they will carry the same legal weight as any other standard under the Regulation. “Grandfathering” or crystallization of legal standards within the new contaminated sites management regime is currently under development. The recently passed but yet to be proclaimed Environmental Management Act clarified that sites remediated to a legal standard, and certified as such, would not be subject to being re-opened in consequence of a change to the standard. Further details related to crystallization are anticipated for the fourth stage amendment to the CSR, expected in late spring of 2004. As this issue will be addressed in the Act and the CSR, it will not be included in Technical Guidance 18, nor in the Director’s standard for NSTS.

20. *Comment*

“Since the “standards” are simply that such substances shall not be present at concentrations that are unacceptable to the Director, the document could be interpreted to imply that all toxic substance must be analyzed at all sites. Presumably, the actual intent is that one would only analyze for nonscheduled substances at sites where there is a reason to believe that specific NSTS have been released at or near the site. This needs to be spelled out in the document.”

Response

When NSTS must be considered is detailed in the subsection of Technical Guidance 18 entitled “Responsible Persons’ duty to test for nonscheduled toxic substances”.

21. *Comment*

“The document seems to preclude the application of risk-based standards to NSTS. For example, footnote 2 on the Generic Numerical Soil Standards table says that “soil must be remediated so that NSTS are not present in concentrations in excess of that acceptable to the Director”. This suggests that NSTS are to be treated very differently from scheduled toxic substances. I don’t believe that application of risk-based standards to NSTS should be precluded. Therefore, I believe the wording in several places in the document requires some adjustment to make it compatible with the CSR.”

Response

The NSTS standard is envisioned to be a Director’s standard. In that respect this standard, as is indicated in the Introduction section of the Director’s standard document, will “have the same legal standing as the numerical soil standards of Schedules 4, 5 and 7 and the numerical water standards of Schedule 6 of the Contaminated Sites Regulation”.

The NSTS standard will thus be used in exactly the same manner as other “not present” type standards already contained within the schedules of the regulation (see for example: “NAPL” and “Odorous substances” standards of the regulation). The Director’s NSTS standard format therefore mirrors that used for other numerical standards already contained within the CSR. As is indicated in the “Nonscheduled toxic substances remediation” section of Technical Guidance 18, the use of the risk assessment approach (i.e. risk based standards) is not precluded for NSTS. As for any other CSR scheduled substance, the existence of a numerical soil or water standard does not mean that the substance can not be dealt with on the basis of the risk based standards.

22. *Comment*

“Finally, the document contains no information on how the Director will set “acceptable” levels for NSTS. Will this be done on a site-specific basis? Will the same procedures used in deriving standards for the scheduled standards be followed?”

Response

Technical Guidance 18 contains a subsection entitled “Determination of a nonscheduled toxic substance” which provides the Director’s criteria to determine if a nonscheduled substance is or is not a nonscheduled toxic substance. In addition, it is important to realize that the proposed Director’s standard for NSTS, i.e. “NSTS - not present” (soil/water must be remediated so that NSTS are not present in concentrations in excess of that acceptable to the Director) is discretionary by design. Such a standard allows the Director to determine what is or not acceptable in regard to a nonscheduled substance on a “substance by substance” and site “case by case” basis if he chooses to do so. Having said that, the Director has provided instruction as to what his requirements are in the general sense relative to NSTS through Technical Guidance 18.

In Technical Guidance 18, several options are provided to responsible persons to demonstrate acceptable management of NSTS. For the majority of NSTS sites, it is expected that responsible persons will elect to remediate NSTS on site to comply with the remedial targets provided in Table 1 of Technical Guidance 18. It is anticipated that relatively few responsible persons will elect to remediate NSTS sites using the PQL or risk based standards.

23. *Comment pertinent to draft Technical Guidance X18e*

“The ___ would like to reiterate the comments contained in our December 2002 submission. While some of our concerns have been dealt with in the new draft, many have not. In addition, a question

has arisen as to when a practical quantification limit (PQL) from Table 1 should be used for a substance where a remedial target exists (the remedial targets are typically much higher than the PQLs). As an example, the PQL for 1,1,1 trichloroethane in water is 4 ug/L while the drinking water remedial target is 10,000 ug/L. If drinking water is not an applicable water use at a site, but another water use does apply, is the remedial target the much more stringent PQL? This is not clear in the discussion of remediation targets for NSTS on page 3 of draft X18e.”

Response

As stated on in the “Nonscheduled toxic substances remediation” subsection of Technical Guidance 18, three options are available to remediate a NSTS site:

- 1. clean to PQL for the NSTS (either the PQL listed for the NSTS listed in Table 1 or to a PQL determined using the procedure provided in Technical Guidance 18), or**
- 2. clean to remedial targets provided in Table 1 of Technical Guidance 18, or**
- 3. use the risk assessment/risk management approach for the NSTS.**

The example described is similar to that of vinyl chloride. Vinyl chloride is a NSTS in soil but not in water. Vinyl chloride is listed in Schedule 6, but only a drinking water standard is provided. No water standards for aquatic life protection, irrigation watering or livestock watering exist in Schedule 6 for vinyl chloride and a responsible person cleaning the groundwater of their site for vinyl chloride using the numerical standards approach therefore has no duty to consider any water use other than drinking water. If drinking water use does not apply at a site contaminated with vinyl chloride, then the responsible person has no duty to clean the water at his site for that substance.

In the Director’s standard for NSTS, for water uses, the “cells” for aquatic life protection, irrigation watering and livestock watering are left blank (i.e. empty). Only the cell for drinking water contains the “not present” standard. This is exactly the same format, and carries the same meaning, as that for vinyl chloride in Schedule 6. Under the NSTS water standard, a responsible person need only demonstrate compliance for the drinking water use, and provide the requisite ecological health assertion; there is no duty to remediate any NSTS for aquatic life, irrigation watering, or livestock watering uses.

24. Comment pertinent to draft Technical Guidance X18b (previous draft)

- 1. Given the long list of NSTS in Table 1, how far must one go in a Stage 1 PSI to determine possible PCOCs and how minute does the possible existence of a PCOC need to be to justify not sampling for a long list of chemicals. Could the Ministry develop a list of “priority” NSTS for specific types of Schedule 2 activities, perhaps an expansion of the short lists for soil and water that were issued in April 2002 and revised in November 2002, with the need to test for additional NSTS from the larger list left to the professional judgement of the Roster member?*

Response

PCOC selection for NSTS should be no different than PCOC selection for CSR scheduled toxic substances. PCOC selection in either case is largely left to the professional judgement of the consultant or Rostered Expert for the site. The consultant/expert will typically select PCOCs based on the history of use of the site and the nature of commercial/industrial activities performed at the site. Schedule 6 lists in excess of 250 “substances” yet consultants and experts apparently have little difficulty in selecting appropriate PCOCs from this list of 250 substances for use in characterizing a very wide range of sites.

End of Comment/Response

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